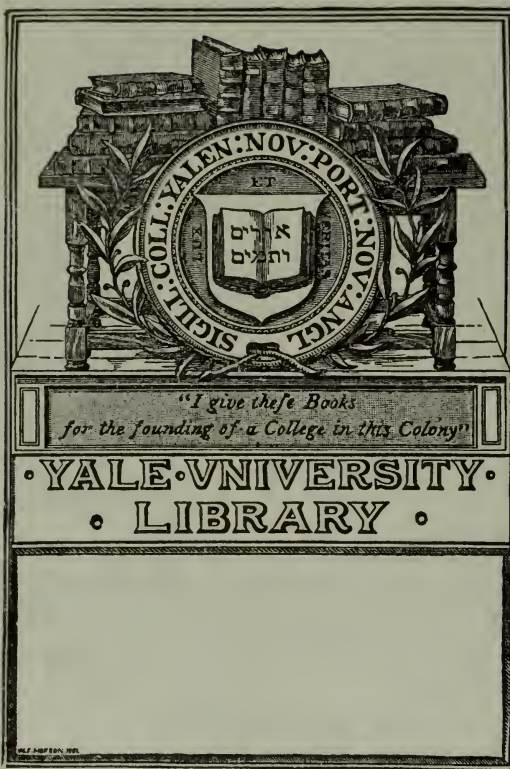
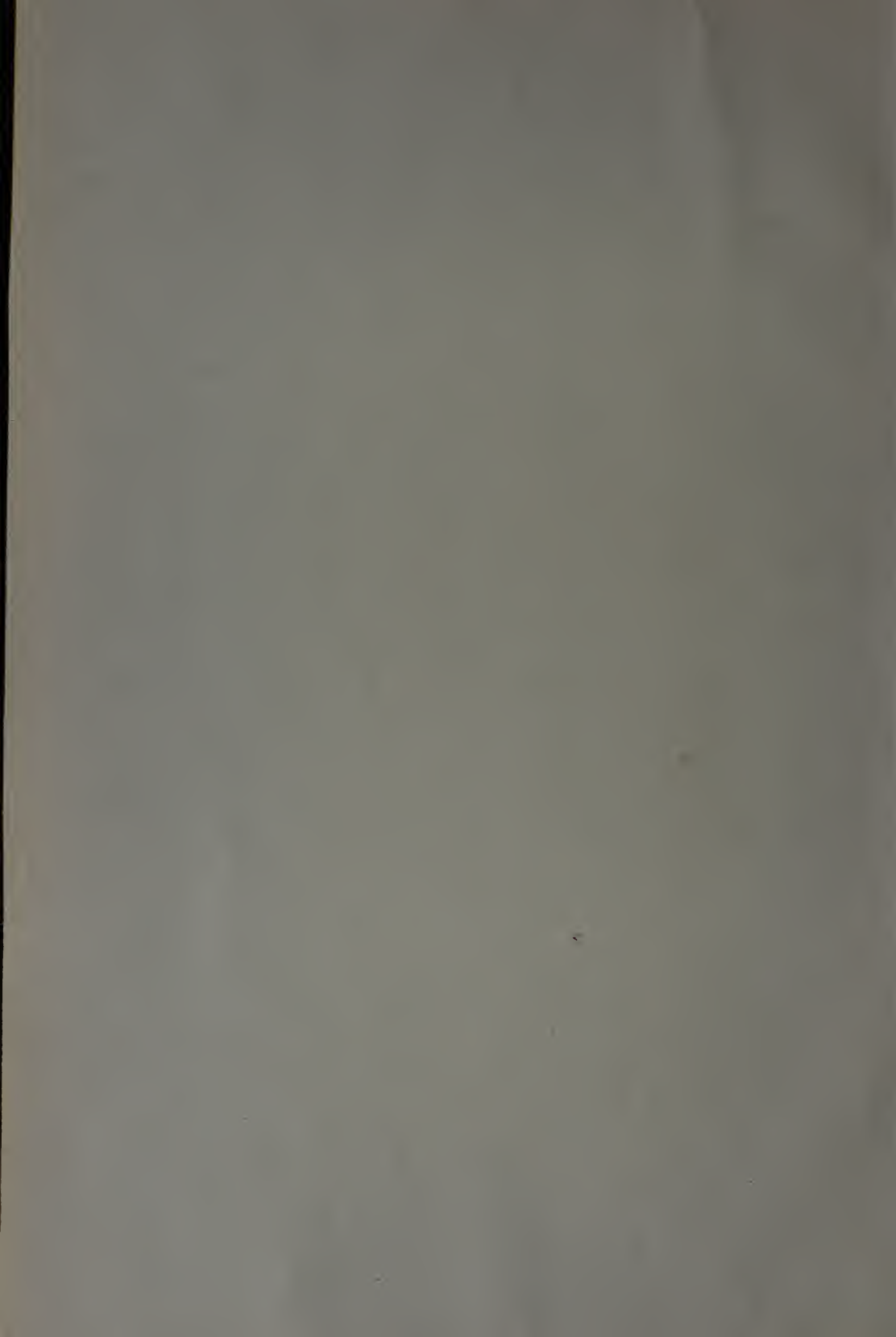


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A CASE OF SYMPUS, OR MERMAID.

By Wm. Royal Stokes, M.D., and Richard L. McNeer, M.D.,
Baltimore.

READ BEFORE THE SEMI-ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL
FACULTY AT ELKTON, 1901.

THE first mention of this curious monstrosity which we have been able to find in literature is contained in the quaint, semi-fanciful volume by Jean Palfyn, called "*An Anatomical Description of the Female Parts Which Serve for Generation, with a Treatise Concerning Monsters*," published in 1708. This case was reported by Fincelius as occurring in Widensbach in 1553. The monster was born without feet, and the legs, which were joined together and inclosed in one sack of skin, gradually tapered off to a pointed extremity.

In the classical French treatise by Isidor Geoffrey Saint Hilaire called "*A General and Special History of the Anomalies of the Organization*," published at Brussels in 1837, the subject of so-called siren-monstrosities is discussed at length. He described these under the general name of symeles (a word derived from the Greek words *σύν* and *μέλος*, meaning legs together), and divides this group into three classes:

The first class—symeles—have two lower extremities united, and two complete feet, in which the plantar surface is turned towards the front. This lower appendage consists of three segments, showing a union of the elements of two normal thighs, legs, and feet. The number of toes varies from about eleven to seven, and the normal right angle which the foot usually forms in relation to the leg is changed to a very obtuse angle, the double foot usually projecting directly downwards in a straight line. The foot is reversed, the toe-nails turning backwards.

The second class—uromeles (*ὄνρα*, a tail) resembles the first variety, excepting that there is not such a complete fusion of the two extremities. The foot usually has five toes.

The third class—sirenomeles (*σειρήν*, a siren)—also shows a less complete fusion of the various segments, and then there is no trace of a foot, as the second or leg segment gradually tapers off

to a point. Saint Hilaire also mentions some cases in which these monsters have an additional appendage, resembling a tail placed immediately above the anal region. This third variety is more frequent than the other two combined.

Meckel held that most of these abnormalities were females, but Saint Hilaire states of the twelve reported cases known up to his time that one was a male, another a female, while in the other ten cases the sex could not be determined, owing to the rudimentary condition or absence of the sexual organs.

Förster, in "*Die Missbildungen des Menschen*," published in 1865, calls the symeles by the name of sympus dipus. The third class, or sirenomeles, he calls sympus apus, and the second class he calls sympus monopus. The anomaly called sympus, meaning joined foot, consists in a malformation of the lower extremities, the pelvis, and the end of the digestive, genital, and urinary tract. The lower extremities are blended into one large extremity, and are turned backward on their axis, so that what is usually the anterior aspect of the femur and tibia is turned towards the posterior. This causes the outer condyles to become united, while the internal condyles are reversed in position. The pelvis is usually very rudimentary, and the bones are of unusual shapes. There is generally no evidence of external genitalia, or anus, and the intestinal tract ends in a blind pouch resting on the rudimentary pelvic floor. These specimens are usually born prematurely and dead.

The sympus dipus, or symeles, has two feet, joined by the astragalus and tarsal bones, but the toes are usually turned backward. Sometimes the legs are separated, and often they are joined by skin.

The bones of the pelvis are usually all present, but the sacrum and ossa innominata are reversed in direction, and the ischia are usually fused. The pubic bones with the obturator foramen are present in these specimens. The femora are generally partially joined together, and the tibiae are on the outside of the leg, while the fibulae are on the inside. Often only one fibula is found between the tibiae. The bones of the foot are usually double.

The deformity of the pelvis brings the cotyloid cavities backward and towards the middle line, and thus causes the femora to more nearly approach each other, and often to unite into one bone in their lower portion.

This malposition of the articulating surfaces and retraction of the heads of the femora also causes the normal anterior surface of the femur to face externally, while the normal posterior surface faces internally. The muscles towards the median line are united, while the other muscles are so placed as to accommodate themselves to the half revolution of the thigh, and the complete revolution of the leg and foot. The great sciatic nerve usually unites into one large trunk, which supplies the extremity. The crural artery also unites into one trunk.

The bladder is misformed or wanting, and the ureters usually



SYMPUS OR MERMAID.—STOKES AND McNEER.

are not attached to the bladder, but open into the dilated blind pouch which forms the end of the intestinal canal. Testicles and ovaries are sometimes found, but the seminal or Fallopian tubes empty into the intestine. The external genitalia and anus are absent.

The symphys monopus or uromeles has only one foot, and the femora are partially fused, while the tibiae are single. There is no sign of anus or external genitalia. The pelvis is similar to that of the dipus. The femur is either single or two such bones are fused into a thick, partially-divided bone. The epiphyses are doubled, and the foot usually has from six to eight toes. There is usually no bladder or rectum, and the kidney and internal genital organs are very rudimentary.

The symphys or sirenomeles gradually tapers off to a pointed extremity, and no trace of a foot can be seen. There is no anus or evidence of external genital organs, and the pelvis is very much deformed. The sacrum is often absent, and when present the surfaces are reversed, and the tip is turned upward. The ossa innominata are fused into one broad bone and reversed. The femur is always single, but the lower end consists of a double joint, with two patellae. The surface, which is usually anterior, is reversed, and points backwards. There is only one tibia, and this is of a conical shape, and only has one double femoral articular surface. The bladder and genital organs are rudimentary, the rectum is absent, the alimentary tract ending in a blind pouch consisting of the dilated end of the descending colon.

CLINICAL REPORT.

The case which we wish to report at present occurred in the practice of Dr. Henry A. Hyland, to whom we are indebted for the specimen. The mother was a white woman, and has other healthy children. The birth of this symphys occurred prematurely at eight months, but was normal in character. The case was reported as a still-birth.

ANATOMICAL DESCRIPTION.

In order to ascertain the various points of difference between the normal fetus of eight months and the specimen under consideration, an autopsy was performed, and the following points were noted:

Thoracic Cavity.—The lobes of the lungs were normal in number, and the lungs were collapsed and non-aerated, as though they had never taken on the function of breathing. The heart was normal, the foramen ovale was patent, and the ductus arteriosus was present and quite large. All of the organs above the diaphragm were normal.

Abdominal Cavity.—The liver, stomach, pancreas, spleen, and kidneys were normal in position and appearance. The liver showed the usual number of lobes, and these were in a normal position. The relation and situation of the large and small intestines were normal, with the exception to be noted below.



SKIAGRAPH OF STOKES' CASE OF SYMPUS.



SKIAGRAPH OF STOKES' CASE OF SYMPUS.

There was no true pelvis present, and the pelvic bones simply formed a solid platform at the extreme lower portion of the abdominal cavity. The sigmoid flexure of the colon ends in a large, dilated, blind pouch. The lower end of this pouch rests upon and is attached to the left iliac bone, and this *cul-de-sac* forms the end of the intestinal tract. There is no trace of the rectum, and no attempt of the alimentary canal to open on the exterior can be detected. There is no bladder present, but there is a small, firm, round body about the size of a pea, which under the microscope consists of tissue resembling the prostate gland.

There is no uterus present, and neither ovaries, Fallopian tubes, spermatic cord, or testicles could be discovered.

The ureters run downwards and slightly forward on each side of the spinal column, and empty into either side of the blind pouch in the pelvis at its lower portion. The attachment of the ureters to the end of the intestinal canal is probably a continuation of the conditions in earlier embryonic life.

There is no sign of any sexual organs on the external surface of the body, and the anal orifice is entirely wanting.

The external and internal conditions, therefore, give no indication of any differentiation into sex, although the fetus is almost at term.

DESCRIPTION OF THE BONES OF THE PELVIS AND LOWER EXTREMITY.

Dr. A. C. Harrison of the College of Physicians and Surgeons described the bones of the lower extremity as follows:

The lumbar vertebrae are normal in number and position, and the deformity begins at the junction of the lumbar and pelvic regions.

The iliac bones are folded outward and backward, so that the posterior borders are in contact and agglutinated. The two tuberosities of the ischium are also in contact, and are fused together, being folded backward in the same way. The whole pelvis is prolonged downward, so that the two pubic bones run nearly parallel, terminating in a symphysis, running downward to a point and looking forward.

The folding back of the ossa innominata has crowded back the sacrum, so that it nearly fills the elongated pelvis, which is represented by a small foramen, through which passes the conjoined sciatic nerves. These soon form a single trunk running along a slit to the termination of the symphysis pubis, which represents the perineal space.

The femora are folded backward again, so that their great trochanters are fused, the head and neck running nearly antero-posteriorly, the head being lodged in an acetabulum which looks downward and backward. This folding completes the revolution, which makes the anterior part of the femur look directly backward. This folding backward takes place successively in the iliac, ischial, and femoral bones, the whole representing an antero-posterior curve, the convexity of which looks forward.

The muscles have their usual points of origin and insertion, and the femora are consolidated, while the two tibiae are distinct. No fibula is present. There is one tendo Achillis, one os calcis, one astragalus, and the remaining bones of the foot are normal in number.

SUMMARY.

This case is of interest in showing a reversal of the bones of the thigh and legs, as well as fusion of the femora into one bone. There are also a number of interesting points concerning the structure and development of the pelvic viscera. A more detailed anatomical description of these specimens will be published later.

The photographs were taken by Dr. John S. Fulton, and the skiagraphs were taken by F. Arnold & Sons.

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Förster: Die Missbildungen des Mench., 1865.

INFECTIVE OTITIS MEDIA, WITHOUT ITS USUAL SUBJECTIVE SYMPTOMS.

By Hiram Woods, Jr., M.D.,

Baltimore, Md.

Clinical Professor of Eye and Ear Diseases at University of Maryland; Surgeon at Presbyterian Eye, Ear and Throat Charity Hospital.

READ AT THE SEMI-ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND, ELKTON, NOVEMBER 19, 1901.

THERE can be no doubt, I think, that ear troubles are receiving greater and more careful attention from the general profession than ever before. This is evident in two ways: a. The rarity of chronic otorrhea, at least in private practice; b. The increased number of cases of otitis media seen by the aurist in consultation, with view to surgical interference, during the acute, tympanic inflammation before perforation. It is, of course, somewhat different in dispensary practice, for there we meet the poor and ignorant; but it is now seldom that I personally have on hand in private practice chronic suppurative otitis media, due to necrosed bone, granulations, polypi, or neglect of ordinary cleanliness. I see many more ear patients than formerly during or

immediately after an acute infectious disease. Either there is deafness, with pain, to call attention to the ears before perforation, or else otorrhea, after only a few hours' of pain, has shown otitis media. There are two causes apparent for this increased professional sensitiveness to aural symptoms—our schools and general medical journals are paying more attention to the subject, and the large and quick succession of ear diseases, sequel of influenza, many of them with mastoid or cerebral complications, have driven in the lesson that it is important to prevent these things in the early stages of the disease which produces them. It is to one phase of the early symptomatology of acute otitis media that I want to call attention. As a rule, the order of events is this: Acute pharyngeal or nasal disturbance, coming independently or in course of an infectious disease, followed by deafness, tinnitus, earache, and otorrhea. These are sufficiently indicative; but when there is no appreciable defect in hearing, subjective noises are absent, the ears are free from pain or discharge, and the pharyngeal lesions absent or trivial, if otitis media occurs under these circumstances, and produces only such symptoms as are common to infection anywhere, the cause of the symptoms will be discovered only if there is appreciation of the importance of embracing the ear in routine examination. Clinical history of such cases runs about this way: The patient, generally a child, has general malaise, chilly sensations, and more or less fever. Maybe there is a little sore throat. Diagnosis is withheld, or made as "grip." After three or four days there is earache of short duration. Heat is applied, and soon pain is relieved by perforation of the membrana tympani. The case is looked upon as otitis media, sequel of grip. I have seen a number of such cases during the past two years, and accounted for them as indicated. Two developed mastoid symptoms after tympanic disease had subsided and hearing had become normal. Operation showed extensive destruction of the cells, with necrosis of inner mastoid table, and exposure of the sinus and dura. In one of these cases, observed throughout by the patient's father, a careful physician, there had been several days of hyperpyrexia, then earache, slight angina, and otorrhea. Mastoid tenderness appearing, I was called in. In two or three days the symptoms subsided without operation. Maybe if I had thought to have a leucocyte-count made I would not have sent the boy home, out of the city, where the mastoid symptoms again appeared in two weeks, requiring operation. I saw the other child during the stage of otorrhea. This disappeared in a little while, but a right torticollis persisted. After three weeks, with good hearing and no new tympanic trouble, mastoid tenderness and redness compelled operation, showing the destruction noted. In both cases the mastoid must have been infected early. Yet local symptoms

were trivial and brief—those of general infection paramount. These cases suggested, as others had before, that the ear complications were unduly severe, considering the mild character of the throat lesion; that possibly the systemic distribution of otitis media might have been in excess of local manifestations—in short, that the chief, if not primary, seat of infection was the tympanum. It is easy to see how a tympanic infection might occur through the Eustachian tube, and yet tissues in the line of travel escape. The organism having once lodged in the upper part of the tympanum—so-called “attic”—or in the mastoid antrum, might produce systemic disturbance, and yet their immediate effect stop short of deafness or earache. Both the latter depend upon engorgement of the tissues or exudation of sufficient intensity to cause mechanical interference. Hence typical ear symptoms would not ensue until this intensity had been reached.

Last April I had an opportunity of observing a case of this kind through the kindness of my friend, Dr. A. Duvall Atkinson. During attendance on this child Dr. Atkinson told me of two observations he had made in general practice. As they are quite distinctive, and indicate a line of diagnosis which might be of great service, I will briefly give their salient points before narrating the case which I saw. One was a case of infectious endocarditis seen at the Johns Hopkins Hospital. The boy was from another State, and when brought in did not seem very ill. However, there was fever, with a decided increase in leucocyte-count. In looking for a cause, other things having been excluded, a history was obtained of transient earache and defective hearing on one side some two weeks previous. Inspection showed redness in Shrapnell's membrane, and incision evacuated a little pus from the attic, showing streptococci. It cannot be said, beyond possibility of contradiction, that the first infection was aural and fatal endocarditis secondary, but the history of ear trouble before anything else, and the findings when the surgeon operated (I think Dr. Randolph), are strongly suggestive. The other case was a little girl who had had transient ear trouble while in the country. Slight pain came during a few days of fever. Two or three weeks later the child was brought to Baltimore, supposed to have typhoid fever. Blood examination negatived this, but showed increased leucocytosis. It was only then that the ear disturbance was recalled. Dr. Harry Friedenwald, who attended in the family, saw the child, found signs of attic inflammation, incised the membrane, with same result as in first case, and recovery was immediate.

The case I saw with Dr. Atkinson was that of a boy, nine years old. He was taken ill on April 23 with nausea and fever; on the 26th he developed right earache, with otorrhea two days later.

I saw him the following day. There was profuse stringy discharge from a perforation in the lower posterior quadrant of the membrane, showing streptococci. The child was very nervous, but when diverted, examination could be easily made, and revealed no mastoid tenderness. There was no local redness of the process; the pharynx was somewhat congested, but not acutely inflamed; temperature was elevated two degrees. I learned from Dr. Atkinson that he estimated the leucocytosis at 13,000. With rest in bed and regular cleanings the otorrhea ceased in four days, and the child seemed convalescent. On the evening of May 10, after a short but dreadful paroxysm of earache, the temperature reached 104.4°. When I saw him, in about two hours, temperature had fallen two degrees. There was a little tip tenderness on the mastoid. After the use of hydrogen dioxide and politzerization, there was slight discharge, lasting a day, and the ear recovered without further mishap. Six days later, early in the morning of the 16th, the child became restless, and his mother found a temperature of 101°. Dr. Atkinson saw him early, and sent for me in the afternoon. I could find no renewal of trouble in the right ear, but the left drumhead showed some congestion of the upper and posterior angle. There was positively nothing else to account for the fever. During the night he developed pain. The next day (17th) redness in the drumhead angle had deepened and extended, but there was no bulging. Under chloroform anesthesia I made a free incision through the membrane in its posterior half. Dr. Atkinson found streptococci in the drop or so of pus evacuated. Recovery was prompt.

This child gave evidence of systemic infection, and showed increased leucocytosis three days before local ear symptoms developed. Yet the right ear was evidently the seat of infection. I have previously observed nausea, a symptom in the beginning of this illness, in otitis media. With the left ear, systemic, appeared at least twenty-four hours before local symptoms, nor were the latter very severe. When I operated the boy had very little pain. In view of this, of the absence of bulging of the membrane, and the small exudate, I think it not improbable that he would have continued moderately comfortable for some days, with continued septic temperature, had I refrained from operating. The lessons such a case teach are obvious—the ear should be included in routine search for infection causing general symptoms, whether or not there is loss of function or earache; a blood-count may be of service in doubtful cases of ear disease; when infection has been, with reasonable certainty, traced to the ear, the latter should receive the same treatment—drainage—which surgery gives infected areas elsewhere.

A CASE OF HEMIPLEGIA ASSOCIATED WITH COMPLETE HEMIANESTHESIA AND UNILATERAL MUSCULAR ATROPHY ON THE PARALYZED SIDE.

By Robert Reuling, M.D.,

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SINCE Todd¹ in 1856 first called attention to the occurrence of muscular atrophy after intracranial lesions, the literature contains surprisingly few reports of cases descriptive of this condition. When Quinke² in 1893 reported seven cases from personal observation, he was able to collect but thirty-three additional cases published by other authors. The presence of a well-marked muscular atrophy appearing, as it did in the case under my observation, about three weeks after paralysis had occurred, warrants, I think, a report of the case. The sensory disturbances in this instance are also of special interest, as our knowledge of the sensory tracts in the brain has been so greatly enriched in the last few years that the presence of well-marked sensory disturbances is aiding in localizing more correctly pathological processes in this portion of the central nervous system.

Report of Case.—Sarah C., colored, aged thirty; single; occupation, housemaid; was admitted to the Maryland General Hospital. She was in a semi-conscious condition, and an examination revealed a right-sided hemiplegia.

Family history unimportant, except that her mother had a "paralytic stroke" when fifty years old, and remained paralyzed for the six years preceding her death. No history of a neurosis in the family.

Previous History.—Although never very strong, and always of a small physique, her general health has been generally good. No history of rheumatism, pneumonia, or typhoid fever. She denies the use of alcohol. No history of a primary lesion of syphilis or of its secondary manifestations. Has never been of especially nervous temperament. No facts elicited pointing to the presence of hysterical stigmata.

Present Illness.—During the entire summer and fall of 1898 the patient enjoyed exceptionally good health, and was able to do the usual amount of work, etc. No history of frequent headache or attacks of vertigo. No dyspnea noted. On December 6, 1898, while at work in the morning, she was suddenly seized with

marked vertigo and a feeling of extreme weakness, affecting more especially the lower extremities. In attempting to reach a chair for support she fell to the floor, where her friends found her in a semi-conscious condition. She claims that at no time was she entirely unconscious, remembering much that transpired after her fall. After reaching the hospital her head ached considerably, and this continued for several days. The vertigo was very noticeable for about two days, especially when the patient attempted to raise the head. There has been no vomiting either before or since the onset of paralysis. No convulsive movements noted in the extremities or face. During the afternoon of the day of admission a feeling of numbness became apparent. This gradually affected the right arm and lower extremity, so that she experienced the sensation as though these members had been separated from the trunk. At present she frequently has difficulty in locating this arm and leg in bed. When in the dark she uses the left hand to find them. At no time was there complete aphasia, though the speech was indistinct for several days after admission. No diminution in visual powers. No diplopia. Sensorium was slightly affected for the first week after admission, but she could generally be roused to answer simple questions satisfactorily. No difficulty in deglutition. No bladder or rectal symptoms.

Physical Examination.—Patient is lying on her left side in bed—a very poorly-nourished negro woman. Radial and temporal arteries show a moderate sclerosis. Pulse 105 to the minute, regular in force and rhythm; tension low. Temperature 98° (there had been fever at regular intervals, with a maximum rise to 103°). Chest expansion poor, but equal on both sides. Lungs clear. Heart-impulse felt in fifth left intercostal space under nipple; slight accentuation of aortic second sound; no murmurs. Examination of abdominal viscera negative.

Sensorium clear; patient answers questions intelligently. No sensory aphasia. The mouth is drawn to the left, and its left angle slightly raised. The right naso-labial fold absent; the left exaggerated. All facial muscles supplied by the lower branches of the right facial nerve paralyzed. Frontalis and orbicularis appear normal. No ptosis present. The tongue when protruded deviates markedly to right; no atrophy of the organ. Pupils equal; react to light and accommodation. Visual fields normal. Ocular muscles show normal innervation. Hearing and taste normal.

A complete paralysis affects the right upper and lower extremities. In the upper this paralysis is of a flaccid character, the muscle tonus being absent. The lower extremity shows considerable rigidity (lead-pipe contracture), and the leg is flexed on the thigh, the thigh towards the abdomen. What is especially striking is the advanced muscular atrophy in these extremities, this being especi-

ally true of the arm, none of the muscles being apparently spared. The biceps is only represented as a thin fibrous band. The right hand is slightly swollen (edema), especially the dorsum. The following measurements show the differences in the two sides:

Right upper extremity.		Left upper extremity.	
Over mid. biceps region.....	15 cm.	18 cm.	
5 cm. above elbow joint.....	14 cm.	17 cm.	
Midway between elbow and wrist...	14.5 cm.	15 cm.	
Greatest measurement of forearm..	16 cm.	19.5 cm.	
Right lower extremity.		Left lower extremity.	
Upper third of thigh.....	31 cm.	34 cm.	
Middle third of thigh.....	29.5 cm.	31 cm.	
Lower third of thigh.....	26 cm.	26.5 cm.	
Mid. leg region.....	21 cm.	21.5 cm.	

None of the atrophic muscles show fibrillary tremors. Unfortunately, an electrical examination was not possible at the time. Dr. Southwick, resident physician to the hospital, tells me that this atrophy of the muscles became apparent three weeks after the patient's admission.

The following sensory disturbances exist: There is complete anesthesia to touch, pain and temperature (heat and cold), and absence of the muscle and stereognostic sense (shape of objects, etc.) on the paralyzed side. This complete hemianesthesia ends abruptly at the median body-line. The mucous membrane on the right half of the mouth and palate also showed a diminution of sensibility. The conjunctiva of the lids on the right appeared less sensitive to painful impressions than that of the left side. I do not believe the cornea was anesthetic. Since the studies of v. Frey³ and Nagel⁴ have shown that areas of anesthesia exist on the normal conjunctiva, and that a special instrument is required for such investigation, one can speak with little confidence on this subject.

As to the most likely pathological lesions which caused the paralysis, etc., in this case, there can be little doubt from the sudden nature of its onset that either a hemorrhage occurred in the brain substance, or that a sudden disturbance in the blood supply of certain areas from thrombosis or embolism of the cerebral arteries took place. The mildness of the apoplectic insult—the patient not losing consciousness, and her general condition improving rapidly—would suggest that if a hemorrhage was the cause, it involved no very large surface. The absence of the usual causes (mitral disease, infectious processes, recent labor, etc.) for the

formation of emboli tend to exclude this etiological factor, and it seems more likely that a thrombus had formed in a sclerotic cerebral vessel whose endothelium, being injured, produced a favorable site for such a process. It is an onset with a milder apoplectiform attack which is characteristic of sudden disturbances in the blood supply of the brain from such causes. Premonitory symptoms are frequently wanting. (v. Monakow.)

Before taking up the sensory disturbances, I am fully aware of how careful we should be before attributing these to organic changes involving sensory tracts, for it has been so frequently demonstrated (Charcot, Oppenheim, and recently van Oord⁵) that hysterical anesthesia not infrequently complicate changes due to organic lesions. The presence of any stigmata of a functional neurosis must be carefully investigated. I believe such are fairly well excluded in this case.

In the lower portion of the medulla oblongata the sensory fibers of the posterior columns of the cord end in two large nuclei situated on either side of the raphe, the fibers of the column of Goll ending in the nucleus funiculi gracilis, while those of the column of Burdach end in the nucleus funiculi cuneati; the former nucleus receiving the sensory impressions from the lower extremity, while the last-named receives those of the upper extremity. In close relationship with the cells of these nuclei are the endings of sensory neurons of a second order, which convey these impulses to higher centers. These fibers cross to the opposite side of the medulla in their course to the midbrain, this crossing of the fibers forming the lemniscus. Some of the fibers of the lemniscus end in the medulla, others pass to the pons and cerebellum. The main portion, however, passes upwards to end in the ventral nuclei of the optic thalamus. Here neurons of a third order collect the sensory impulses and convey them to the cells in the brain cortex (in the lower parietal region, perhaps in the central convolutions). It is clear that the sensory fibers in the brain are not unbroken paths, but are made up of segments (neurons) which increase in complexity as they near the cortex, and it is only in the more inner portions of the brain where these fibers are apparently collected into well-formed tracts. On nearing the cortex they diverge markedly, so that their endings cover a large surface. The posterior third of the internal capsule (subthalamic portion) is made up principally of sensory fibers. All sensory impulses from the cord do not, of course, take the course described; some undoubtedly avoid the nuclei of the columns of Goll and Burdach and pass upwards in lateral tracts. This is undoubtedly true of the fibers subserving the sense of pain.

From the course and arrangement of the sensory fibers in the brain it is apparent that if a lesion is to produce complete hemi-

anesthesia, this must be of considerable extent, provided it occurs in the cortical or subcortical substance, for here the fibers have converged and take up a large surface, as before pointed out. That cortical lesions may produce hemianesthesia we see from the cases reported by Vetter, Nothnagel, Luciani, Gepilli, Starr, and others.⁶ I believe that only a comparatively small surface was involved in the case here reported, and that it probably has involved the sensory portion of the internal capsule of the left cerebral hemisphere. It is more difficult to exclude the sensory portion of the medulla, there being no symptoms suggesting pressure on any of the cranial nerves. Of course, the facial was involved, but one could almost exclude the possibility of this being due to injury to the trunk of the nerve or its nucleus in the medulla, as the frontalis muscle was not paralyzed. Lesions in the lower portion of the medulla are generally associated with alternating anesthesia (Starr⁷) or bilateral hemianesthesia. In the latter instance, one-half of the body is usually more anesthetic than the other, these changes being due, of course, to the crossing of the sensory fibers in this portion of the medulla.

There is at present no very satisfactory explanation for the muscular atrophy following cerebral lesions. Charcot and his pupils, Pitres and Brissand, believed it could be explained by the degenerations occurring in the pyramidal tracts, and that this extended to and gave rise to secondary degenerative changes in the motor cells of the anterior horn, and as these are also the trophic cells for the muscles, the muscular atrophy seemed easily explained. Senator in 1879, and later Baginsky, demonstrated that this muscular atrophy could occur without such changes in the anterior horn cells, so that the theory of the Charcot school no longer held good. Darkschewitch⁸ holds that the muscular changes are secondary to changes in the joints (arthropathies), but as these are by no means constant, although comparatively frequent complications in these cases, his views can hardly be accepted. In my patient no true arthropathy existed, the increased size of the right hand being certainly do to a serous infiltration, probably a vasomotor phenomenon. Some observers still believe in the presence of special trophic nerves in the central nervous system, and associate all such changes in the muscles, etc., to an interference in their functions, but as physiologists so far have been unable to demonstrate these satisfactorily, their existence is doubtful. The views of v. Monakow, I believe, explain the muscular changes better than those of any other observer. He believes the atrophy is due to an absence of the several physiological impulses which are apparently necessary for the activity and growth of muscles, namely, the motor, sensory, and vasomotor impulses. It is therefore the injury of several sets of fibers conveying these impulses that produce these

degenerative changes. It is certainly striking how frequently sensory and vasomotor phenomena are associated with the cases in which muscular atrophy appears soon after an intracranial lesion. That the muscles may atrophy within a remarkably short time after the onset of the paralysis has been demonstrated by Senator, who reports a case in which it appeared about the eleventh day. As a rule, the atrophy begins between one and two months after the onset of paralysis. Cases have been reported in which the motor disturbance was very slight, so that a hemiparesis existed and marked muscular degeneration was present. After progressing for two to three months, the atrophy usually remains latent, and sometimes perfect restitution of muscle substance has been reported. The muscles usually show slight diminution in their contractility to electric stimuli, and some authors have reported the presence of the reaction of muscle degeneration. (Eisenlohr.⁹)

¹Clinical Lectures on Paralysis, Certain Diseases of the Brain, and Other Affections of the Nervous System. London, 1856.

²Ueber cerebrale Muskelatrophie. Zeitsch. f. Nervenheilkunde, Bd. IV.

³Beiträge zur Physiologie des Schmerzsinnes. Bericht der mathemat.-physik. Klasse der Kgl. Sächs. Gesellsch. f. Wissensch., Leipzig, Juli, 1895.

⁴Die Sensibilität der Conjunctiva u. Cornea des menschlichen Auges. Pflugges Arch. f. die ges. Physiologie, Bd. LIX, S. 563.

⁵Tabes ohne Ataxia mit Hysterie. Deutsch. Zeitsch. f. Nervenheilkunde, Bd. XIII, Nos. 1-2.

⁶See von Monakow. Nothnagel's spec. Pathol. u. Therapie, Bd. IX, S. 370.

⁷Medical Record, 1893, p. 168.

⁸Affection der Gelenke und Muskeln bei Cerebralen. Arch. für Psych., Bd. XXIV.

⁹Muskelatrophie und elektrische Erregbarkeits Veränderungen bei Hirnherden. Neurol. Centralbl., 1890.

Current Literature.

MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

SEROTHERAPY IN TYPHOID FEVER.

Chantemesse (*La Presse Médicale*, Nov., 1901) gives in this article a most careful review of his work in the treatment of typhoid by the use of serum prepared from horses.

After calling attention to the frequency of typhoid fever in France, and the value of the cold-bath treatment, Chantemesse tells how, with Widal, he has been treating cases of typhoid fever by serum since 1892, although the first results were most unsatisfactory, as they were able to obtain a preventative serum only, and not a curative serum as well. It was not until 1897 that the true soluble typhoid toxine was obtained, and, *ipso facto*, an anti-toxic serum that could be used curatively.

This toxin Chantemesse described at length at the Medical Congress at Madrid in 1898, and he devotes the present paper entirely to a consideration of serotherapy in typhoid fever among human beings.

Chantemesse first calls attention to the varying mortality in this disease (from seven to forty per 100) in different epidemics, and the necessity, in determining the value of any remedy, of comparing the results obtained by its use in the same epidemic and under the same conditions as other cases treated along other lines, and also of having at least 100 cases in the series so treated to minimize the chances of error.

By the use of his serum he cured all twenty-nine of his cases at the Bastion, and at the Hospital Tenon, among thirty cases so treated, there were four deaths, while in the same hospital, among the cases not so treated, the mortality was fourteen in forty-four cases (31.8 per cent.).

From a consideration of the mortality statistics in the various Paris hospitals Chantemesse concludes that the death-rate is between 22 and 25 per cent. of all the adult cases of typhoid fever treated by the ordinary means (a mortality which seems extremely high to American physicians), while the official figures of the mortality in typhoid fever among men, women and children in Paris was given as 18.5 per cent. both in 1899 and in 1900. Chantemesse then gives the results of his method of treatment in 100 cases at eight of the Paris hospitals. All were cured who were treated before the tenth day, six succumbed to the disease, three of perforation, while in the fourth case the injection was given on the twenty-first day of his disease, and the sixth, a very bad case, died of a lumbo-sacral abscess. Only patients who were gravely or seriously ill were given the injections.

A careful and critical review of the separate cases follows. A series of temperature charts is given showing the rapid defervescence and decrease of the pulse-rate after the injection in uncomplicated cases treated early in the course of the disease. In some of these cases a second rise of temperature is noted subsequently, due presumably to the fact that all the typhoid bacilli were not destroyed by the first injection, and in these cases a second injection is necessary, as a rule the temperature falling less rapidly after these second injections than after the first.

So far it has not been possible to definitely determine the exact date of the disease after which one injection is unable to abort the attack, as so many other factors must be considered in this connection, especially the virulence of the infection and the power of resistance of the organism. The chances are good if the injection is given before the eighth day of the disease, while one may hope for a rapid defervescence if it be put off until the ninth, tenth, eleventh, or twelfth day. All such influences as alcoholism, syphilis, fever of long duration, or an intense and generalized infection tend to make the effect of the serum less marked, and in cases of this nature a larger dosage or a second injection is recommended. In a certain number of cases relapses occur from eight to twelve days after the injection, due to the fact that all the germs are not destroyed nor their toxins neutralized by the first injection. On the least appearance of a second rise of temperature an inhibiting dose of the serum should be given immediately. The duration of the malady in cases treated by the serum is notably diminished, the rapidity of cure depending largely upon the day of the disease on which the treatment is administered. As to the general effect of the treatment, twenty-four to thirty-six hours after the injection the patient feels better, the headache diminishes, and the color improves, the diarrhea is lessened and soon disappears, rarely lasting more than two, three or four days after the injection.

The influence upon the pulse and blood-pressure is marked, and the slowing of the rapid pulse is one of the most constant and significant signs of a rapid cure following the injection. If the temperature falls gradually, the pulse-rate also diminishes gradually.

Under the influence of the serum, the blood-pressure, so much lowered in typhoid fever, is much increased. From a pressure of 12 to 13 mm. of mercury it frequently rises to 17 or 18 mm. in from three to four hours after the injection, thus explaining the polyuria often observed after the injection.

Particularly remarkable is the action upon the temperature, a fall of temperature being always noted. Where the infection is feeble, the injection of the serum first calls forth (in three or four hours) a moderate elevation of temperature for several hours, followed by a fall, usually quite rapid. When the infection is intense and generalized, the reaction produced by the serum is much more prolonged, the rapid destruction of a large number

of bacteria by the serum throwing into circulation a large amount of pyretogenous substances, bringing about a more or less intense febrile reaction, which may be combatted by the use of cold baths, rigorously followed. The fever may last from one to four days, and then the fall takes place. If, from a study of the temperature chart, a relapse seems imminent, the immediate injection of the serum is advisable. The action of the serum upon the kidneys is as follows: A marked polyuria is produced, which persists for a considerable time, but this is only associated with a marked increase in the elimination of the chlorides if the temperature remains normal. In this connection the administration of a large amount of water by mouth is advisable. When the kidney is normal before injection of the serum no albuminuria is produced.

The blood is remarkably modified, as after the injection it shows the changes normally met with at the conclusion of an attack of the disease, *i. e.*, hyperleucocytosis, the reappearance of the eosinophiles, and an increase in the transitional cells and polymorpho-nuclear leucocytes. As far as complications are concerned, they seem to be distinctly decreased, and even perforation seems less liable to occur in all those cases in which the injection is given before the tenth day. Thus the effect of the serum treatment of typhoid fever in human beings is the same as in animals experimentally tested, *i. e.*, it is preventive, anti-infectious, and antitoxic.

In two of the ten cases a slight erythema followed the injection. The dose recommended is from 10 to 12 c. c., given subcutaneously in the forearm, which may be somewhat reduced in amount if the treatment is given in the very early stages of the disease (fifth or sixth day). The use of cold baths and of a copious amount of fluids by mouth is also recommended.

The most essential point in the success of this method lies in the "*precocité de la injection*."

The serum has been obtained from horses which have been vaccinated since 1896. An attempt to prepare the serum more rapidly often kills the horse experimented upon.

CONGENITAL NARROWING OF THE ARTERIAL SYSTEM.

Burke (*Deutsches Arch. f. klin. Medicin*, 1901, Vol. LXXI, Parts 2 and 3), after discussing the reported cases of this condition from Morgagni's case to the present time, and giving in detail the clinical and pathological findings in many, thinks that he is justified, from a consideration of these cases (nearly 100 in all), in grouping the concomitant symptoms of this condition as follows:

1. Congenital narrowing of the arterial system, associated with various diseases of the blood—(a) chlorosis (according to Virchow), (b) pernicious anemia, (c) hemophilia, (d) purpura hemorrhagica.

2. Narrowness of the aorta in connection with infectious diseases—(a) as predisposing causes, (b) as factors leading to a fatal termination of these conditions.

3. Narrowness of the aorta, with general dystrophies—(a) acromegaly, (b) dwarfish growth.

4. Narrowness of the aorta, associated with cardiac diseases—(a) narrowness of the aorta, with diminution in the size of the heart; (b) narrowness of the aorta, with increase in the heart's size, especially hypertrophy of the left auricle; (c) narrowness of the aorta, with enlargement of the heart and rupture of the aorta; (d) narrowness of the aorta, with enlargement of the heart, and consecutive dilatation and muscular insufficiency.

According to Burke, a diagnosis during life of congenital narrowing of the aorta is one of the most difficult problems in cardiac diagnosis; but one may venture to make such a diagnosis with the presentation of the following clinical picture: A young, pale, slightly-built individual, with signs of deficient development, as hypospadias, absence of the pubic hairs, and poorly-developed genitalia; with circulatory disturbances, dyspnea, and palpitation after slight muscular exertion or psychical excitement, while coincidently with absence of valvular disease, cardiac hypertrophy, especially dilatation of the left ventricle, with pulse of high tension, the absence of pulsation in the jugular vein, and an accentuated pulmonic second sound is found.

In brief, the result of his consideration of his own cases and those from the literature is as follows:

1. In opposition to the views of many authors, he is obliged to conclude that a narrowing of the arterial system must be regarded as a cause of disease, for which the following consequences of this condition from an anatomical as well as a clinical standpoint speak.

(a) in the heart.

Hypertrophy of the left heart, to which, if the left ventricle is enlarged, an added dilatation of the left ventricle, of the left auricle, congestion of the lungs, hypertrophy of the right ventricle, and, if the condition has existed a sufficiently long time and the resistance of the right ventricle is exhausted by this or other intercurrent conditions, also dilatation of the right ventricle.

(b) In the arteries.

Arterio-sclerosis in young individuals as an expression of a long period of high blood-pressure.

As clinical phenomena, one meets with paleness of the face, a feeling of narrowing and constriction in the chest, and dyspnea, with cough and catarrhal expectoration, signs of hypertrophy, with dilatation of the left ventricle, and insufficiency consecutive to this, extension of the area of pulmonary resonance, and signs of a bronchitis due to stasis, with increasing weakness of the right ventricle, enlargement of the liver, albuminuria, and edema. Which of these symptoms will appear in the individual case depends upon various circumstances, as the sex, occupation, mode of life, and the duration of the affection. In women anemia is met with, the picture being one of either chlorosis or pernicious anemia, while secondary cardiac changes are usually absent.

Probably in these cases the diminution in the quantity of the blood is to be regarded as a compensation for the increase in arterial resistance due to the narrowing of the aorta.

In men, on the other hand, the blood changes are of but slight importance compared to the pathological changes in the heart which are met with.

2. Etiologically, two possibilities must be considered—one, condition is congenital, the other that it is due to a stoppage in growth of the vascular apparatus.

3. One must admit, on theoretical grounds, that the narrowness of the blood-vessels is a predisposing cause for infectious diseases, as this condition undoubtedly leads to a condition of bodily weakness and lowered resistance on the part of the affected individual.

4. The narrowing of the vessels appears, as Virchow has already noted, to be a predisposing factor in the development of various taints or dyscrasias.

THE CONDITION OF THE BLOOD IN ADDISON'S DISEASE.

Hamel (*Deutsches Arch. f. klin. Medicin*, 1901, Vol. LXXI, Parts 2 and 3) gives the clinical findings in two cases of Addison's disease, paying especial attention to the changes in the blood.

After giving a careful clinical history of his two cases, and the results of the autopsy findings in one (in which tuberculous lesions were met with in both adrenal glands), he thoroughly reviews the literature regarding the blood changes in the disease from the original observations by Addison himself, and finally gives the result of his own determinations of the red and white blood cells made several times in each of the two cases.

Briefly stated, the results of his observations are:

1. Anemia is an essential and inseparable symptom of Addison's disease.

2. The poisons heaped up in the blood in Addison's disease, due to the pathological disturbances of function in the adrenal glands, may not harm the blood morphologically, *i. e.*, must not be regarded as peculiar blood poisons.

3. In cases of uncomplicated tuberculosis of the adrenals the single blood-drops may present a normal picture. The anemia which is undoubtedly present must be regarded as an oligemia, and is caused only by the tuberculous toxins eliminated in the caseous adrenal glands.

4. In cases of uncomplicated carcinoma of the adrenal gland a morphological degeneration of the blood is to be expected in a greater or less extent.

5. In the complications of Addison's disease the blood is correspondingly changed.

6. Anemia, with morphologically intact blood, in Addison's disease points to adrenal tuberculosis; anemia, with morphologically changed blood, points to adrenal carcinosis or to complications of the disease.

THE FAT-SPLITTING FERMENT OF THE STOMACH.

Volhard (*Zeitschrift f. klin. Medicin*, 1901, Vol. XLII, Parts 5 and 6), after considering the various contradictory views regarding the presence of a fat-splitting ferment in the stomach, and giving in detail a series of experiments performed by him on this subject, concludes that the gastric secretion contains a fat-splitting ferment, which can split off free fatty acids from emulsified fats; that the fat-splitting ferment, like pepsin, is mainly produced by the epithelial cells of the fundus; that it may be extracted by means of glycerine from these cells, and that it passes through the clay filter unchanged; that it is eventually destroyed by the pepsin and hydrochloric acid, which possibly explains the well-known property which fat possesses of stimulating the secretion of a gastric juice poor in pepsin and hydrochloric acid, while the demonstration of this fat-splitting ferment furnishes another proof of the correctness of Pflüger's views that all fat must be split up before it is absorbed.

In a second article upon this same subject (*Zeitschrift f. klin. Medicin*, 1901, Vol. XLIII, Parts 5 and 6) Volhard gives the results of his subsequent experiments upon the value and reaction of his fat-splitting ferment. He found that towards alkalies the fat-splitting ferment of the gastric juice is very sensitive, and that of a glycerine extract of the gastric mucous membrane is not, while towards acids the former is much more resistant than the latter. The gastric juice contains the fat-splitting ferment, the mucous-membrane extract its zymogen. The fat-splitting by means of this ferment does not increase proportionately to the time, but irregularly; the reaction is incomplete, and only a certain proportion of the neutral fat present is split up.

The fatty ferment seems to obey the law of Schütz and Borisow regarding the action of ferments in the gastro-intestinal canal, *i. e.*, that the products of digestion are in the proportion of the fourth roots of the masses of ferment present.

In achylia gastrica Volhard found that the fat-splitting ferment, as well as the rennet and the pepsin, was produced in much diminished quantity, while high grades of hyperacidity markedly interfere with the process of fat-splitting in the stomach.

THE INFLUENCE OF THE MINERAL SALTS CONTAINED IN DRINKING WATER UPON THE CONSTITUTION OF THE BLOOD.

Dünshmann (*Zeitschrift f. klin. Medicin*, 1901, Vol. XLIV, Parts 1 and 2) discusses at length this interesting subject more from a theoretical than from a practical point of view, his conclusions being mainly based on a series of carefully-performed animal experiments which he carried on, the water being usually administered at frequent intervals by injection into the peritoneal cavity, so that he could feel that most, if not all, of it was rapidly absorbed.

The water used was that from the "Elizabeth Spring" at Homburg.

The following changes in the blood were noted :

1. The water content of the blood gradually increased, in one case from 82.65 per cent. to 84.09 per cent., in the other case from 82.62 per cent. to 85.41 per cent.

2. The total quantity of dried substances was diminished, from 17.35 per cent. to 15.91 per cent. in one case, from 17.38 per cent. to 14.59 per cent. in the other case.

3. The quantity of proteids in the blood is likewise diminished, from 2.55 per cent. to 2.28 per cent. in one case, from 2.55 per cent. to 2.06 per cent. in the other. A consideration of these last two findings shows that the diminution in soluble proteid is proportionately greater than that of the total dried substance.

4. The specific gravity of the blood is diminished (from 1.054 to 1.046), while at the same time the arterial pressure is increased.

5. The serum exhibits the same changes as the blood as a whole; it is richer in water, poorer in dried substances and in nitrogenous material, the latter again relatively more than the former.

6. We must therefore conclude that the substances, the proportionate amount of which in the whole blood is increased at the cost of the substances that contain nitrogen, are those that are more powerfully osmotic than the proteid bodies. These are the salt constituents of the mineral water.

PATHOLOGY AND BACTERIOLOGY.

By José L. Hirsh, M.D., Baltimore.

ON THE CHANGES EFFECTED BY ANTITYPHOID INOCULATION IN THE BACTERICIDAL POWER OF THE BLOOD, WITH REMARKS ON THE PROBABLE SIGNIFICANCE OF THESE CHANGES. A. E. Wright. *The Lancet*, Sept. 14, 1901.

In a previous article the author has outlined the methods (1) for obtaining without difficulty any desired dilutions of a bacterial culture; (2) for mixing together in a series of capillary tubes a series of small volumes of serum with corresponding volumes of each successive dilution of the bacterial culture; (3) for testing the bacterial effect produced by the serum upon these dilutions, and (4) a simple procedure for enumerating the living bacteria contained in a culture.

The experiments were made upon surgeons on probation in attendance on the Army Medical School, Netly. The maximum time the inoculated remained under observation was a period of three months. In each case a sample of blood was drawn off before inoculation.

The first inoculations were with very small doses of vaccine.

The observations made on the bactericidal power of the blood anterior to and subsequent to antityphoid inoculations are arranged in three tables: I. Observations relating to fourteen surgeons who, not having previously suffered from typhoid fever, were inoculated with fresh typhoid vaccine; II. Observations relating to two surgeons who, having recently convalesced from attacks of typhoid fever, were inoculated with fresh typhoid vaccine; and III. Observations relating to four surgeons who, not having previously suffered from typhoid fever, were inoculated with typhoid vaccine prepared twenty-four months previous to the date of inoculation.

In thirteen out of fourteen normal persons inoculated with freshly-prepared vaccine; further, in one out of two convalescents from typhoid fever inoculated, and again in two out of four normal persons inoculated with vaccine prepared twenty-four months previously, definite evidence was obtained of an increased bactericidal effect exerted upon the typhoid bacillus by the blood drawn off subsequent to antityphoid inoculation.

With regard to the sequence of events after an antityphoid inoculation it has been shown:

1. That when the quantum of antityphoid vaccine employed produces the familiar well-marked constitutional symptoms a decrease in the bactericidal power of the blood and a correspondingly increased susceptibility to typhoid infection may supervene in the period immediately subsequent to inoculation. Upon this negative phase of increased susceptibility there may, however, be expected to succeed probably within a period of three weeks or less a phase of increased bactericidal power and a greater resistance to typhoid.

2. That when the quantum of antityphoid vaccine employed produces very severe constitutional symptoms a negative phase of increased susceptibility will be produced, which (and the same would appear to hold true also in case of negative phase supervening upon an actual attack of typhoid fever) may never be followed up by a positive phase of increased resistance.

3. That when the quantum of antityphoid vaccine employed is reduced to the point at which marked constitutional disturbance is avoided a positive phase of increased resistance may be expected to supervene without the intervention of any negative phase, and in many cases within twenty-four hours.

The following practical conclusions would appear to follow from the data set forth above:

1. The employment in primary inoculation of large doses of vaccine—meaning thereby doses sufficient to give rise to very severe constitutional symptoms—would appear to be always inadvisable, while it would probably be associated with danger in

cases where inoculation is resorted to in the actual presence of a typhoid epidemic.

2. The employment of moderate doses of vaccine—meaning thereby doses sufficient to give rise to marked, but not severe, constitutional symptoms—would appear to be inadvisable when making primary inoculations in the actual presence of a typhoid epidemic. On the contrary, such doses would seem to be appropriately employed where an interval of several weeks is to elapse before exposure to infection, and where there are difficulties in the way of carrying out two successive inoculations.

3. The employment of small doses of vaccine—meaning thereby doses which produce only a slight constitutional disturbance—would appear to be the only appropriate form of inoculation in the actual presence of typhoid infection. It would seem to be also in all other cases the most appropriate form of inoculation. Such primary inoculation ought, however, in all cases to be followed up by second inoculations with an increased dose of vaccine.

* * *

THE DEPOSIT OF CALCIUM SALTS IN THE LUNGS AND STOMACH.

D. Kidchensky. *Referat Centralblatt f. Path. Anat.*, August, 1901.

The deposit of lime (phosphate and carbonate) in the lungs and in the mucous membranes of the gastro-intestinal canal was first described by Virchow, who found inflammatory changes in the kidneys in all of seven cases described, and in six cases of the same series disease of the bones of the skeletons. The deposit of calcium salts Virchow attributed to the excess of these salts in the blood, due to resorption from bone and the failure to eliminate them by the diseased kidneys. On account of this view Virchow described this condition as "lime metastases."

After Virchow, the condition was also described by Kuttner, Schafer, Roth, Chiari, Davidsohn, Litten, and others. In several of these cases no disease of the skeleton was found, so Virchow's explanation would not hold. Kochel found in his case of petrification of the lung a chronic venous hyperemia of the lungs, and also emboli and thrombi in the pulmonary arteries. From this fact he concluded that petrification is observed in only those tissues whose functions are lessened on account of deficiency of nutrition. The existence of inflammatory changes is not a necessity in this condition, for, in the first place, renal disease was not found in his or Chiari's cases; and secondly, according to Rey, calcium salts are eliminated chiefly by the intestines, and not by the kidneys.

In most of the cases hitherto described the petrification of the lung was localized in the parenchyma of the lung and in the interlobular tissue, while the capillary walls and the small blood-vessels

were normal. On the other hand, in several other cases the process was limited to the walls of the capillaries and small blood-vessels. In the mucous membrane of the gastro-intestinal tract the petrification was found in the interstitial connective tissue.

The case reported by the author was in a woman, forty-two years old, who during life suffered from obesity, pain and frequent vomiting. At the autopsy petrification was found in the lungs and the mucous membrane of the stomach. Both lungs had extensive pleural adhesions. Parts of the left lung felt as if it were infiltrated with sand. Likewise the mucosa of the stomach had a similar feel, and at intervals showed atrophic areas. *There was absolutely no disease of the skeleton.* Besides the above, there was found fatty degeneration of the heart, chronic interstitial nephritis, and amyloid degeneration of the spleen. Marked sclerotic changes in the vessels were not found, with the exception of a small atheromatous affection of the aorta.

Microscopic examination showed that the deposit of lime salts had taken place chiefly in the walls of the capillaries and small blood-vessels, in small amount in the lung parenchyma, the interlobular tissue, and the cartilaginous parts of the bronchi. In most places the vessel walls were changed into complete lime rings, and looked like stone. Only here and there were granular masses to be seen. In the neighborhood of a petrified vessel inflammatory changes were observed in the connective tissue and on the bordering alveoli.

In the stomach the deposit of lime was observed in the capillaries and smaller blood-vessels of the membrana propria, partly in the interstitial connective tissue, and in the glandular epithelium. Besides, areas of petrification, hyaline degeneration in the capillary walls were noted. The amount of elastic connective tissue in the affected parts of the lung was not diminished.

The etiology of the condition remained unexplained to the author.

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A REMARKABLE CASE OF AORTIC ANEURISM OF SIXTEEN YEARS' DURATION; DEATH FROM RUPTURE EXTERNALLY. T. R. C. Whipham. *British Med. Jour.*, Nov. 2, 1901.

Whipham reports a case of a man who had a rheumatic family history. No history pointing to syphilis could be elicited. In 1884 he began to suffer from an incessant cough and indefinite thoracic pains. In 1886 he noted a swelling on right side of sternum. The tumor was expansile, about three and one-half inches in diameter, but no bruit was heard over it. The voice was hoarse, and cough suggestive of pressure, and there was also inspiratory stridor. Right pulse was slightly the weaker of the two. During first two weeks in hospital the aneurism increased rapidly in size,

and the skin over it was tense, shiny, and discolored. Under diet and potassium iodide the patient's condition improved very much. A year later he returned to work, and followed his employment until early part of 1892, when he was again admitted to the hospital. The previous symptoms returned, and the man seemed to be in imminent danger. The iodide treatment was resumed, and the patient again improved. In 1895 and again in 1897 he had recurrences of the former symptoms, which again abated. In February, 1901, the aneurism had increased very much in size, and the anginal pains were very severe. There oozed from the surface a small quantity of blood. On the 8th of April the patient had a rigor, and sixty hours later a large conical mass of laminated fibrin became detached, leaving a considerable cavity in the chest, in which no definite pulsation could be seen. There was only slight pulsation, and the patient continued fairly comfortable, with the exception of pain for about nine days. The aneurism then suddenly burst externally, and the man died in about a quarter of an hour.

At the necropsy the whole of the ascending and transverse portions of the arch were found to be greatly dilated and very atheromatous. From the upper and anterior aspects of the arch there arose a sacculated aneurism as large as a cocoanut, full of laminated clot, which passed forwards and communicated with the exterior. The trachea was eroded about three-quarters of an inch above its bifurcation, and the lungs showed signs of bronchitis. The heart was slightly dilated, but not obviously hypertrophied, the aortic valves alone being a little thickened. There was no evidence of pressure on any part of the neighboring structures, and nothing worthy of note in the other thoracic or abdominal viscera. The remarkable points about the case are: 1. The length of time during which the patient was known to have had an aneurism. For full fifteen years he was kept under observation, and during the whole of that time he had a large external tumor, though the aneurism had evidently been forming a year, and perhaps more than a year before that. (The longest case heretofore recorded is mentioned by Sir W. Gardner, which was known to have existed for twelve years, and that under circumstances entailing considerable cardiac strain.) 2. The frequent, and at times rapid, variation in the size of the aneurism, which on several occasions seemed likely to cause an abrupt termination to the patient's life. 3. The marked benefit which accrued from prolonged periods of complete rest and treatment, both medicinal and dietetic. 4. The recovery from an intercurrent attack of pleurisy and pneumonia. 5. The fact that the entire external portion of the aneurism sloughed and came away, after which the patient lived for nearly nine days. 6. The termination by rupture externally, which is by no means a common cause of death in these cases, even though such a contingency may appear imminent.

NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

ON PERINEURITIS AFFECTING THE SACRAL PLEXUS, AND ITS TREATMENT. A. Guttenberg. *Münch. med. Wochenschrift*, XLVII, No. 7.

Guttenberg has observed several cases in the last few years of pathological changes in the lumbar nerves associated with hysterical symptoms. He cites five cases in the article. The disease differs from sciatica in various ways, also in that it affects women more frequently than in men. The symptoms vary according to the variety and situation of the pathological process. If one or both sides of lumbar plexus are involved, or if only a single nerve or several nerves are diseased, the patient first complains of annoying sensations in the small of the back, described as a dull ache and painful pressure, with feelings of a weight in the back and region of the hip. Later, more marked pains are noticeable about the sexual organs and bladder, at the same time pain in the thigh, reaching below the knee, or even in the foot. Stooping increases the pain. The thigh is held in a state of moderate flexion, and the entire extremity is turned slightly forward and inward. In time the muscles begin to atrophy. The reflexes remain normal. No points painful to pressure are found. The usual long duration of the disease tends to make these patients irritable and nervous. The diagnosis of this form of perineuritis is aided by the presence of solitary or elongated thickenings, which are felt on deep palpation on the nerve trunks of the lumbar plexus. These thickenings at times consist of small, round, perineural nodules, giving the nerve a beaded appearance, and this can be felt on careful palpation. The patients must be examined in various positions—standing, knee-elbow, and lying on the side. The palpation in the knee-elbow (*per rectum* or *vagina?*), the bones of the true pelvis can be readily felt, and the nerves of the sacral plexus palpated to a sufficient degree to enable the examiner to make out the nodules on the nerve trunks. Guttenberg says these vary in size from a pea to a small bean. Pressure on the nodules elicits acute pain. The patient may become bedridden with the fixed idea that locomotion is impossible, so that a profound hysteria exists, no doubt due to the constant pain. The condition may closely simulate coxalgia, for which it is frequently mistaken. The author believes the thickenings about the nerves are exudations of a sero-fibrinous character. The treatment consists in a general symptomatic treatment combined with local massage. The finger-tips are used to gently stroke along the thickened nerve trunks, the sitting to last but a few minutes at a time. This local massage favors the absorption of perineural exudate. In some cases a thrombosis of the venous sacral plexus seems to exist, but its anatomical demonstration has not been accomplished.

PROGRESSIVE MUSCULAR DYSTROPHIES, WITH A REPORT OF A POST-MORTEM EXAMINATION. B. Sachs and Harlow Brooks. Meeting New York Neurological Society. *Journal of Nervous and Mental Diseases*, Vol. XXVIII, No. 7.

The authors state that it cannot be claimed that there is any sufficient distinction between the amyotrophies and the dystrophies. In former years much stress had been laid on the muscular structure. Hypertrophied fibers were found in abundance in dystrophies, whereas in the amyotrophies these fibers were not found. But later it had been shown that the hypertrophied fibers were found in other diseases than dystrophies. It was also a question whether the gray matter of the cord was affected in the primary dystrophies. The case reported by Sachs and Brooks was one of progressive muscular dystrophy of fifteen years' duration.

The patient had been admitted to the Montefiore Home eleven years ago at the age of twelve. Early in life the parents had noticed peculiar movements of head and eyes. At the age of twelve years, after an attack of typhoid fever, the calves were observed to be decidedly hypertrophied. There was a marked atrophy of all the muscles of the shoulder, girdle, arm and forearm. The deep spinal muscles were intensely atrophied, and also the thigh muscles. The case became an example of progressive muscular disease of the pseudo-hypertrophic type. The lad's intelligence was fair. The autopsy showed all the organs normal, with the exception of an acute pneumonia and slight myocardial changes. There were no gross lesions of the brain or spinal cord. No lesions of the smooth voluntary muscular tissue could be found anywhere in the body. The psoas muscle showed extensive fibrosis. All the muscles of the back showed extensive fibroid replacement, and in places there was a replacement by yellow fat. The trapezii were very extensively invaded. The most marked changes were in the muscles of the calves, where normal muscular tissue was lost. On microscopical examination the muscles showed extensive replacement, with areolar tissue of the adult type. In the calf only occasional remnants of voluntary muscles were found. Most of the fibers of the psoas muscles were either larger or smaller than normal. The coarse striae could usually be made out. The changes in the other voluntary muscles were of the same character, though varying in extent. In the occipital muscles the connective tissue hyperplasia was less, but nuclear proliferation was prominent. Examination of the various smooth muscles failed to show degeneration or hyperplasia of its connective tissue. The cardiac muscle was in a very natural condition—no atrophy, no abnormal pigmentation or abnormal nuclear activity. Numerous peripheral nerves were examined, but no appreciable degeneration was discovered. Only a few spinal ganglia had been properly prepared for examination, and although slight shrinkage of the ganglia cells was found, this may have been due to the fixing agents employed. Apparently the connective tissue of the ganglia had been increased; in fact, the

neurologia of the entire cord was found to be increased. Nothing in the nature of a systemic degeneration of the nerve fibers was found at any level. In the cervical region the ganglion cells of the anterior horn showed a slight nuclear eccentricity. The most common lesion was a finely-granular subdivision of the plaques, usually not involving the systoplasm. A few lumbar cells showed an unusual amount of brown pigment collected about the nucleus.

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DEGENERATION IN HEMIPLEGIA, WITH SPECIAL REFERENCE TO A VENTRO-LATERAL PYRAMIDAL TRACT, THE ACCESSORY FILLET, AND PICK'S BUNDLE. Stanley Barnes. *Brain*, Part XCV, 1901.

The author was able to trace in four cases of hemiplegia in man a tract which descends with the pyramid from the cerebral cortex or basal ganglia at least as far as the pons, and which in the cord was situated in the ventro-lateral region near the periphery. This tract consists of a number of small and large fibers which split off as a compact bundle from the pyramid either in the lower third of the pons or in the medulla, and, coursing obliquely outwards, lie at the edge of the cord in the ventro-lateral region. Occasionally they are not split off until the decussation of the pyramids, in which case the tract is formed from the direct pyramidal tract of the same side. No case is recorded in which the fibers are given off below the first cervical segment. In all cases the tract is an uncrossed one.

The tract is variable not only in size, but in its region of distribution. In most cases the fibers begin to become diffuse at the third cervical segment, and they cease to be a tract in the lower cervical region in some instances, as in two cases of the author they can be traced down to the lumbar region. As a rule, it is not more than about one-quarter of the size of the direct pyramidal tract, but, like the latter, it is very variable—it may be completely absent, or, as in one of his cases, it was as large as the direct pyramid itself. The exact origin of the tract the author was unable to determine. From two of his cases it is evident that the fibers lie dorso-lateral to the main mass of the pyramid in the lower pontine region. It is probable that they are closely associated with the accessory fillet between the pyramidal and the temporo-pontine fibers in the crus cerebri. Beyond this region it was impossible to trace them, but he thinks it quite evident that they are derived either from the Rolandic or closely-adjacent cerebral cortex, or from the caudate or lenticular nuclei. "They certainly do not arise in the optic thalmi." The author rather favors their cortical origin.

The ventro-lateral columns of the cervical region in man are now known to contain the following sets of descending fibers:

1. Intersegmental fibers, short and long, originating in the spinal cord.
2. The fasciculus peri-olivaris (von Bectereu), arising in the inferior olive.

3. The vestibulo-spinal tract (Ferrier and Turner) from Deiter's nucleus.
4. The ponto-spinal tracts from the pontine nucleus.
5. The colliculo-spinal tracts (Boyce-Collier) from the corpora quadrigemina.
6. The thalmo-spinal tract (von Monakow, Boyce) from the optic thalamus.
7. The ventro-lateral pyramidal tract, probably from the cortex, possibly from the lenticular nucleus.

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A NEW SYMPTOM IN SYRINGOMYELIA (*Thorax en bateau*). Goldbaum. *Gazeta lekarska* (Polish), No. 13, from a reference in the *Neurological Centralbl.*, No. 14, 1901.

The author describes a symptom noted in the clinic of Pierre Marie in Paris, which consists in a boatlike deformity of the thorax in cases of syringomyelia. The anterior thorax wall is unduly sunken. The arms are moved in a plane more forward and higher, so that the head appears sunken. The upper part of the thorax, including the manubrium sterni, inclines posteriorly, and appears sunken. A deep depression is thus formed, giving this portion of the chest the appearance of a boat. The depression extends from shoulder to shoulder and down to the fourth and fifth ribs. The depth of the depression is not the same in different regions of the thorax. The author found the maximum depression 3 cm. to the left of the median line; in another case it was 9 cm. to the right. In the sagittal plane the deepest hollow was generally 3 cm. below the manubrium sterni. The depth of the affected portion varied in cases from 1.5 to 5.5 cm. The author does not believe the condition can be explained by the scoliosis, nor does the presence of muscular atrophy account for it, but credits it to the specific symptoms of syringomyelia under the head of trophic disturbances. As the author points out, this symptom has been described by Marie, also by Astie ("*Le thorax en bateau de la syringomyelie*," *These Paris*, 1897), and by Kattwinkel (*Deutsches Archiv für klin. Med.*, 1899). In the author's article two instructive photographs are included.

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DYSPHAGIA PSYCHICA. Prof. W. von Bechterew. *Neurolog. Centralbl.*, No. 14, 1901.

This condition is of considerable importance and interest to the neurologist, and probably far more frequent than is indicated by the author's experience, who met but ten cases during ten to twelve years. The differential diagnosis of this form of dysphagia from that due to organic stricture, etc., in the gullet, or the local spasms of the gullet met with in hysteria, is of importance. It is to be especially remembered that with the latter it has nothing in common.

During the year Rosslimo (*Neurolog. Centralbl.*, 4, 5 and 6) reports eight cases having certain difficulties in the act of swallow-

ing, which were independent of any organic disease of the throat or alimentary tract, nor was there any spasm of the esophagus, as in hysteria, nor evidence of an organic disease of the central nervous system. The condition, he believes, depends upon a disturbance in the normal innervation necessary for the act of swallowing, which is controlled by the higher brain centers. This author distinguishes between the three following forms of dysphagia dependent purely on a disturbance in the association centers: 1. Dysphagia amyotactica (motoria), in which there is a peculiar weakness (paresis) in the act of swallowing; 2. Dysphagia amyotactica sensoria, in which certain sensory disturbances are prominent; and 3. Dysphagia amyotactica psychica, in which the psychic element is shown by a pronounced fear of swallowing food.

Bechterew's article cites two very interesting cases, one of which will be briefly reviewed:

A woman, a teacher of singing, suffered five years from nervous spasms, which increased to such an extent that she was obliged to give up solid food, and limited her diet entirely to liquids. The idea that any solid particle would cause strangulation was so fully impressed on this patient's mind that she could not overcome it. She did not tell others of her trouble, as she was afraid of losing her position. Her general nutrition suffered to such an extent that she became extremely emaciated, and the condition assumed a rather serious aspect. As to the pathology of this condition, the author found that all of his cases had marked hereditary neurotic tendencies. Frequently other nervous symptoms are present, more especially those of a hysteric or neurasthenic character. It is noteworthy that in a few cases the disturbance in deglutition was the only really prominent disturbance.

The disturbance in deglutition not infrequently dates from a single marked choking. This incident may act as a nervous shock of sufficient magnitude to produce a lasting impression on the higher cerebral centers, so that the fear of its recurrence remains for an indefinite time. In almost all of the author's cases, during the "choking" sensations experienced by the patient, there was marked cardiac palpitation and other symptoms so familiar in choking.

As to the therapy of these cases, Bechterew had good results with hypnotic suggestions, local paradization, and by the use of hydrotherapy, sodium bromide, and codeine.

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A CASE OF PARALYSIS AGITANS SHOWING VARIOUS MYXEDEMATOUS SYMPTOMS. Herman Lundborg. *Deutsche Zeitsch. für Nervenheilkunde*, Vol. 19, Nos. 2-4.

The case reported by the author is of exceptional interest in connection with certain pathological changes occurring in the skin in paralysis agitans. These changes have not until very recently received the attention of clinicians, and Frenkel was the first to clearly describe the macroscopical character of the skin changes, his article

appearing in Vol. 18 of the *Deutsche Zeitsch. für Nervenheilk.* This author also believes that the peculiar expressionless (mask face) appearance of the face was due to an increase in the fibrous tissue of the skin, causing it to adhere more closely to the underlying tissue, and in this way producing the immobile facies of paralysis agitans. The frontal symptom of Motchuwofsky is apparently due to the same cause. Reuling (MARYLAND MEDICAL JOURNAL, Vol. I, XLIV), who substantiated to a great extent the claims of Frenkel, studied the skin changes microscopically, and the reader, if interested in the subject, is referred to his article.

Lundborg describes somewhat different changes, but in the pathological report it is clearly stated that a well-marked increase in the fibrous tissues of the skin is present, combined with the changes peculiar to myxedema. A review of Lundborg's article follows:

The patient, a widow aged fifty-four years, whose family history is interesting, as one sister had for several years preceding her death a well-marked tremor and other symptoms suggesting paralysis agitans. A brother died at the age of forty-five of dementia paralytica. Another sister died, aged forty-two, having had spinal cord disease for several years. A sister has ticdoloureux, from which disease the patient's mother also suffered.

The patient had always been of a neurotic temperament. Onset of present illness gradual. In 1891 she first noticed a slight tremor affecting the left hand and toes of left foot. Shortly after pains were felt in the affected hand, the elbow, forearm and calf. In 1892 the entire left arm was involved in a well-marked tremor; since then the tremor has spread to the right side, and affects the breast and abdominal muscles, also neck, tongue and lips. The face, however, is not involved. Progressive weakness and stiffness of the muscles has accompanied the conditions. For the last six months she has spent the entire time in a chair; has become very melancholy. The face has the expressionless character seen in paralysis agitans. The author describes the changes in the skin as follows:

The skin in many places appears thickened and infiltrated, especially over the cheeks, nose and chin. The lines of the face are peculiarly coarse, the naso-labial folds deep, the nose is thickened. The skin over both lower extremities is very much thickened and markedly infiltrated in certain areas, especially about the legs, the skin of thighs being less involved. Strange to say, the skin over the remainder of the body showed no appreciable change. Both lower extremities were very edematous, this being more marked in the left than right. It had the appearance of that seen in elephantiasis, and the photograph which accompanies the article illustrates this very well. There is no pitting of the edematous parts on deep pressure. The patient's memory and intellectual faculties have degenerated considerably during the last year. Her speech is slow and deep-toned. There is a peculiar puffiness under the eyes, which is not an ordinary edema. It causes the eye to appear very small, and the face in general has the appearance of that seen in myxedema. Her

hair has become very thin and feels dry and coarse. Thyroid gland not palpable.

Thyroid tablets were given for about four weeks, but with no result, as the circulation became so depressed they were discontinued. Diuretin was then tried, but this did not lessen the swelling. The patient died of broncho-pneumonia, and there was absolutely no change in the general condition before her death.

Autopsy.—Only the changes in the thyroid gland and skin will be described, as it is of these the article treats especially. The gland was found atrophied, especially the right lobe; consistency slightly increased. The sections show nowhere normal gland tissue. The color in general on sectioning the gland is grayish white with numerous red markings. On microscopical examination the right lobe showed an increase in the connective tissue. The follicles were markedly degenerated. Many show a tendency to form cysts. The colloid substance much reduced. The left lobe showed less connective tissue formation, but numerous cysts, and the epithelium of the alveoli was atrophic. This lobe is described as resembling an emphysematous lung.

Changes in the Skin.—When compared with a section of normal skin the thickening is very evident; the cutis is especially increased. Just under the epidermis there is a small cell infiltration, the cells often arranged in clumps. Below this is a broad layer of structureless connective tissue, which has very different staining reactions from the connective tissue in normal skin. It only stains weakly with eosin or fuchsin, and with Wiegert's elastic stain no elastic fibers are brought out. In the layers of the subcutaneous layer elastic fibers were demonstrated. These fibers are frequently very twisted in their course like corkscrews. The fatty tissue lies far deeper than in the normal skin. Although there seems little reasonable doubt that this was a case of paralysis agitans showing myxedematous symptoms, with advanced pathological changes in the thyroid and skin, the latter resembling those seen in perhaps the great majority of uncomplicated cases of paralysis agitans (increase of cutis and connective tissue with small cell infiltration), and besides this, a peculiar degeneration of the skin tissue as seen in myxedema, nevertheless it seems the author goes rather far in advance of our present opinion of the pathology of paralysis agitans when he attempts to connect the disease of the nervous system with changes in the functional activity of the thyroid. He cites a case or two where this disease was complicated with exophthalmus, a condition no doubt due to higher activity of the thyroid, but this does not justify us in assuming an intimate connection between the action of the thyroid secretion and the central nervous system, at least in this disease. We must also consider the marked hereditary taint of this patient, whose nerve cells could easily have lacked by inheritance those powers of resistance which insure these cells against the numerous injurious influences to which the central nervous system is daily exposed, and especially the degenerative changes accompanying old age.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

Assisted by Joseph Hume, M.D.

THE FORMATION OF TENDON OUT OF SILK WITH PERIOSTEAL TRANSPLANTATION. F. Lange. *Centr. f. Chir.*, Nov. 23, 1901.

The results of tendon transplantation depend, in the first place, upon whether the new muscle is sewed with strong tension, and whether this suture will hold. Since in the old methods of tendon-transplantation (suture of strength-distributing muscle to the weakened muscle) the atrophic tendon under the influence of contraction can still further lengthen itself, the writer has for two years been in the habit of sewing the divided tendon direct with the periosteum (periosteal tendon-transplantation). In order to make use of these methods, which offer such sure results, the writer has in all cases made use of silk when the tendon of the transplanted muscle is too short or too thin. In doing this he has used from four to eight strands of the strongest silk, one end being sewed to the end of the tendon and the other end to the periosteum, with strong tension between. By this method he has now operated upon forty-four cases. All healed by first intention, and stitch abscesses have not occurred in any of the cases, although some have been observed for two and one-half years, and, indeed, in two cases in which the strong tension caused the silk to cut through the skin, there was still no suppuration.

The functional results obtained in these cases were excellent even where there was great tension. The permanency of the result is proved by the fact that along the silk the tendon grew out in genuine tendon tissue. The writer shows a specimen from a case in which two and one-half years before silk tendon 12½ cm. long had been made use of, and thought that this specimen alone was sufficient to induce the other members of the congress to make use of the method.

In the discussion of Lange's paper—

WOLFF said that he had gone a step farther in four cases, where, instead of making a simple periosteal transplantation, he had made an osteal tendon plastic. His plan was by means of the knife or chisel to make a small excavation in the bone, in which the tendon was planted, allowing the lower end to project beyond the hole. The periosteum was then sewed over the embedded tendon, and also the projecting end of the tendon was sewed to periosteum below. In this way, according to the author, a tendon insertion was made which was very similar to the natural tendon insertion, and necessarily stronger and more lasting than the periosteal transplanta-

tion. The four cases were: Paralytic varus 2, paralytic valgus 1, congenital valgus 1. The result in all of these cases was as good as could be wished.

PETERSEN preferred to make use of silkworm gut as a substitute for tendon where this had to be replaced. This is very easily sterilized, and are not absorbed by living tissue. Liquids have very little effect upon them, and in cases where they have been for a long time in the body, on examination have been found natural in appearance. The author had experimented on animals where, after removal of a portion of Achilles' tendon, the ends were connected by means of two silkworm-gut threads. Examination later showed that a strong, thick tendon had formed itself along the threads of silkworm gut, and the whole tendon was as long as normal.

HOFFA, in a paper entitled "The Experimental Foundation of Tendon Plastics," said that tendon plastics, with their numerous modifications, furnish a very great advance for orthopedic surgery. Although these operations have now already been carried out thousands of times, there still was lacking sufficient knowledge concerning the healing processes in the course of tendon plastics. Lücke has recently furnished this in a communication concerning eleven examinations of preparations from the plastic operations upon dogs and cats. In some the tendons were lengthened and in others shortened, and in others sewn together in various ways, and after certain intervals the animals were killed. The histological findings were briefly as follows: In the course of a few weeks a scar was produced in which the tendon tissue and the peritenon internum and externum, as well as the peritendinous connective tissue, take part. The new formation of tendon tissue is really very extensive. It consists of numerous bundles of new tendons which stream into the scar. In the first weeks the new-formed scar appears much like connective tissue; later, however, it is more tendinous in character; but newly-formed tendons are after many months to be differentiated through the difference in the number of cells present. If infection had occurred at the operation, the proliferation of connective tissue was more abundant than that from the tendon. The healing was further retarded if considerable hemorrhage occurs in the region of the operative wound. As time goes on the number of cells and blood-vessels considerably diminish, while the other elements increase.

The practical value of these are that they show that good results depend on the most careful asepsis, on careful hemostasis, and on fixation of the operated parts, or until complete healing of the tendon has occurred, with a good, solid scar.

* * *

SURGERY OF THE SPLEEN. Fevrier. *Revue de Chirurgie*, June, 1901.

This is a valuable report of a splenic surgery, with a report of

many cases. The writer divides surgical affections of the spleen into four general categories:

1. Traumatic injuries, comprising subcutaneous rupture, wounds and hernia of the organ.
2. Splenic abscess.
3. Tumors, comprising cysts, hypertrophies or splenomegaly, which is divided into four classes, namely: (a) leukemic splenomegaly, (b) paludal splenomegaly, (c) idiopathic splenomegaly, and (d) tubercular splenomegaly.
4. Displacements of the hypertrophied spleen in health, with or without torsion of the pedicle.

The diagnosis of ruptured spleen is based on the evidence of internal hemorrhage, tenderness in the left hypochondriac region, and, usually, external signs of a local contusion. Much attention is paid to two signs which come on several hours after the injury, namely, contraction of the abdominal muscles, which contraction often extends to the testicles, scrotum and penis, and a dullness, not very pronounced at first, but accentuated, which is apparent in one or both flanks, more often the left. If found in both flanks, changes in position cause it to disappear in the right, but not in the left flank. Late complications of splenic rupture are a local peritonitis or the formation of a subcapsular hematoma, which later becomes infected.

After analyzing fifty-six cases of rupture of the spleen which have come under his care, the writer concludes that in cases where the splenic tissue is very much broken, and the capsule has long and deep tears, splenectomy gives the best results. In cases where the capsule is torn for not more than two or three centimeters, and with little injury to the splenic tissue, then suturing, with perhaps the gauze drainage, is best: and lastly, if the spleen is very adherent, and suturing and packing fail to check the hemorrhage, then ligate the pedicle.

In traumatic hernia of the organ it is first advisable to try to reduce the rupture by gentle pressure. This failing, splenectomy is the operation of choice. In thirty cases in which this operation was done there were no deaths.

In hydatid and sero-sanguineous cysts, splenectomy is advised, unless there be solid and multiple adhesions, when simple incision would appear to give the best results.

As regards leukemic spleens, the question as to the best course to pursue is still in doubt. Splenectomy, at any rate, seems very unfavorable, only four surviving out of forty-two cases operated upon.

In paludal splenomegaly, some sort of an operation seems almost a necessity, the condition of such patients being so grave, and the uselessness of medical treatment so apparent, that surgery alone can offer any hope to the patient. The author has operated in eighty-six cases, with only fifteen deaths, and those who recovered

have been able to return to active life. If the patient is in very poor health, the operation is contraindicated. Other contraindications are a very adherent spleen with a very short pedicle.

The question as to the best method of procedure in tuberculosis of the spleen is yet undecided, the literature being very scant, and little study having been done on this subject. Apparently, if the surgeon decides to operate, splenectomy done in the usual manner gives the best results. Quénu has obtained excellent results by performing a splenectomy on the extraperitoneal portion of the spleen, with drainage of the tubercular foci.

Displacements of the spleen are treated by splenectomy, which the author maintains is simple and easy of execution, or by various operative procedures, intra- or extraperitoneally, designed to hold the spleen in position, but which demand considerable skill and experience on the part of the operator. Displacements complicated by torsion of the pedicle are very serious, and demand operative interference. The present mortality for the operation is about 23 per cent., but it appears that the mortality may be much decreased by early operation.

* * *

THE DIAGNOSIS AND TREATMENT OF RENAL DISEASES. Kümmell.
Revue de Chirurgie, June, 1901.

The writer lays great stress on a thorough understanding of the functional and structural capacity of each kidney before undertaking renal operations, and shows from a study of twenty-six cases that the information gained from previous clinical examination by the most recent methods was corroborated either by operation or autopsy.

Physiologically, the freezing-point of the blood varies between 0.55° to 0.57° . Any diminution in this indicates that the kidneys are functioning in a defective manner, and that there exists some renal insufficiency. It is useless to attempt any surgical interference as long as the congelation-point does not reach 0.56° , provided malignant or benign kidney tumors, abdominal neoplasm or uncompensated cardio-vascular lesions can be excluded. In addition to the determination of the freezing-point of the blood, the author deems also necessary cryoscopy or the freezing-point of urine, the quantitative estimation of urea eliminated, the elimination of sugar after the injection of phloridzin, all with respect to the urine of each kidney as determined by ureteral catheterization.

In twenty-six cases in which these diagnostic means were employed, there were seventeen cases of hydro- or pyonephrosis, seven cases of renal tuberculosis, one case of anuria calculosa, and one of double kidney with multilocular cysts. Nephrotomy was done on the first twenty-four cases, with twenty-two recoveries and two deaths. The case of anuria calculosa recovered after removal of the stone, while the last case with the congelation-point at 0.69° died of uremia.

Kümmell insists upon the necessity of such a clinical examination for several successive days before undertaking any serious operation on the kidney. It can no longer be doubted that the degeneration of the secreting parenchyma of the kidney is in direct proportion to the lowering of the freezing-point of urine and of the elimination of urea. But it must be remembered that the freezing-point of the blood is also lowered in tumors of the kidneys, abdominal growths and uncompensated cardio-vascular lesions. In such cases the complementary examination of the urine by cryoscopy, amount of urea, and quantity of sugar excreted after injection of phloridzin reveal the exact renal condition.

* * *

OBSERVATIONS IN THE DIAGNOSIS AND TREATMENT OF ACUTE GONORRHEA, WITH SPECIAL REFERENCE TO THE VALUE OF PROTARGOL AS A THERAPEUTIC AGENT. A. L. Wolbarst. *Journal of Cutaneous and Genito-Urinary Diseases*, December, 1901.

This is one of the best-conducted series of experiments yet appearing in the journals on the treatment of acute gonorrhea. It is not merely an exposition of the therapeutic value of protargol, but also lays much stress on the value of careful treatment, with an excellent summary of the clinical facts which either help or retard the progress of a case.

In attempting to estimate the effects of protargol, injections of a 1 per cent. solution were given once daily (except Sundays) at the dispensary. A record was kept of the daily condition of each patient, the amount and character of the discharge, the presence or absence of gonococci, the condition of the urine, and complications, if present.

Forty-six cases were selected for study. They were all virgin attacks, showed the gonococci, presented the typical clinical picture of the disease, and were under observation from start to finish. Cases were divided into two classes—(1) that in which the anterior urethra alone was invaded, (2) and that in which both anterior and posterior urethra were affected. Treatment for the first class consisted in the daily injection with a glass syringe of a 1 per cent. protargol solution, which was held in the urethra for from five to ten minutes. This was continued until the discharge ceased and shreds alone remained; then some astringent solution, such as zinc sulphate, was given, at first combined with and later substituted for the protargol. In the posterior cases the entire urethra was irrigated by the Janet method with potassium permanganate, salt solution, etc. In all the cases the bowels were kept open, diet regulated, and sexual excitement interdicted. Of these forty-six cases, the anterior urethra was involved in 83 per cent., and the posterior became involved later in 17 per cent. of all cases.

In anterior cases the average duration of the discharge was thirteen days, the gonococci being present for an average period of

nine and one-half days. In posterior cases the average duration was a little over fourteen days, the gonococci persisting for an average of nine and four-fifths days. The average duration of the cases was thirty-five days, for the posterior fifty-six days. No complications occurred in the anterior cases. In the posterior cases epididymitis complicated two, rheumatism one, while in all there was some inflammation of the prostate.

Concluding, the writer states:

1. The earlier the treatment is begun the greater is the probability that the inflammation will be confined to the anterior urethra. 2. A meatus of narrow caliber strongly points to the probability of posterior involvement and a severe course of the disease. 3. In anterior urethritis, protargol in one-half to 1 per cent. solution constitutes a most valuable remedy. 4. The advantages of this method of treatment over the older methods are—(a) absence of pain and discomfort, (b) brief duration of the profuse discharge, (c) comparatively shorter duration of the disease, (d) diminished danger of complications, (e) early disappearance of the gonococci.

Book Reviews.

GALLSTONE DISEASE. By Prof. Hans Kehr. Translated by W. W. Seymour, A.B., M.D. Price \$2.50. Philadelphia: P. Blakiston's Son & Co. 1901.

This is undoubtedly the best work on gallstone disease yet brought out. Though devoid of illustrations, it is attractively printed, cleverly translated, and retains the style, attractive by its simplicity and conciseness, of its German author.

The author deals with the differential diagnosis of gallstone disease, and his experience, based on over 547 operations for gallstone diseases, is sufficiently extended to give his observations weight, and his results are sufficiently good for others to wish to emulate him. Special attention is paid to the pathological anatomy of cholelithiasis, for it is the only sure foundation upon which to base the diagnosis and treatment of the disease. Inflammation plays the leading *rôle* in all the symptoms of cholelithiasis, yet this will not explain all forms of colic, often anger or indiscretions in diet being the exciting cause of an attack.

In relation to the association of cancer with gallstone disease, Kehr states that undoubtedly the concretions furnish the stimulus to malignant formation. Courvoisier found gallstones in 87.5 per cent., Delano Ames in 95.4 per cent. of the cases of gall-bladder cancer. Schroeder finds that 14 per cent. of gallstone patients suffer from cancer, and the author meets with about the same proportions.

The classification of cholelithiasis suggested by Naunyn is discarded and the following given:

1. Gallstones in gall-bladder, with patent cystic duct.
2. Gallstones in gall-bladder, with obstructed cystic duct.
 - A. Acute form of cholecystitis.
 - a. Serous cholecystitis.
 - b. Purulent cholecystitis.
 - B. Chronic form.
 - a. Dropsy, and
 - b. Empyema of gall-bladder.
3. Gallstones in the cystic duct.
 - a. Acute obstruction.
 - b. Chronic obstruction.
4. Pericholecystitis (adhesions).
5. Carcinoma of gall-bladder.
6. Carcinoma of head of pancreas, choledochne, and duodenum.
7. Cholangitis diffusa, thrombophlebitis, etc.

Great attention is paid to the anmnesis and physical examination, the author insisting upon the advantage of the former, often making an exact diagnosis from history alone. One hundred clinical and operation histories are given in detail, and the clinical pictures thus suggested are illustrative of all forms of gallstone disease, and are of material aid to the student. It may not be amiss to quote the results of Professor Kehr obtained in gall-stone surgery. Of 204 conservative operations on the gall-bladder (cystotomies, cystectomies, cystendyses), there were four deaths; of 121 cystectomies, four perished, and of ninety-seven choledochotomies, six resulted fatally. In cases complicated with carcinoma of the gall-bladder, liver or pancreas, or if there existed diffuse cholangitis or peritonitis, then the mortality rose to 47 per cent. Excluding those cases which no treatment could possibly relieve, there were, out of 422 gallstone laparotomies, fourteen deaths, making a mortality of only 3.3 per cent.

In speaking of the frequency of gallstone disease, Kehr states that in the German Empire every tenth adult carries stones in his gall-bladder, but only about 5 per cent. of these complain of any trouble. In other words, there is a condition of latent cholelithiasis, which is a rather harmless affection, though the fact cannot be disregarded that malignant disease of the gall-bladder may develop from the irritations of stones lying quiescent in its fundus. As regards the treatment, little attention is paid to the colic, but rather to the cause, which can only be relieved by operation, and in some few cases by the Carlsbad cure.

It is to be regretted that the writer gives no bibliography or references to his quotations, except to his own articles in magazines. With this exception the book is well-nigh perfect, and the student of cholelithiasis can learn much from it.

C. H.

PATHOLOGICAL TECHNIQUE. A Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By Frank Burr Mallory, M.D., Assistant Professor of Pathology, Harvard Medical School, and James Homer Wright, M.D., Director of the Clinico-Pathological Laboratory, Massachusetts General Hospital. Second edition, with 137 illustrations.

This book begins with a concise and complete description of the best method of making a post-mortem examination. This includes a list of the proper instruments to use, as well as accurate instructions for investigating diseases of the brain, spinal cord, internal ear, eye, and naso-pharynx.

The various bacteriological methods are next taken up, and the manufacture of all the usual and special culture media, together with their proper reaction, sterilization and preservation, are well given. The preparation of cover-slip specimens, the collection of materials for cultures, the method of making pure plate-cultures, the inoculation of animals, the cultivation of anaerobic bacteria, and a list of many useful special stains end the chapter. The simple, but very useful, methods for cultivating anaerobic bacteria are to be commended, as the more cumbersome methods usually given are often very disappointing in the laboratory.

The special characteristics of all of the important pathogenic bacteria make most instructive the reading of Chapter IV.

Part Third deals with all of the important histological methods used in the pathological laboratory. This includes the imbedding of diseased material, the cutting and staining of sections, the examination of special organs and tissues, and the demonstration of the various products of inflammation, degeneration, and necrosis. The staining of bacteria in tissues and the methods for studying lesions of the brain and nervous system are very complete.

The book is concluded with a section on the examination of animal parasites.

The volume, which does not waste space on complicated or unpractical methods, is beautifully illustrated by many photographs, photo-micrographs, and drawings, and is a very useful guide to pathologists, clinical men, and special workers.

W. R. S.

PEDIATRICS. By T. M. Rotch. Third edition. Lippincott & Co.

The third edition of Rotch's *Pediatrics* is a decided improvement over the second edition, which appeared about six years ago.

The first hundred pages are devoted to a study of the normal infant. Particular attention is paid to the anatomy of infants, and variations in sizes and weights of the individual parts are given in tabular form. The illustrations of the stomach at various ages will be found useful. The chapter on feeding occupies considerable space. A good deal of it is conventional, and will be found in every book on pediatrics; but, then, it is

to be remembered that Rotch was really a pioneer in this line. The section on the management of food in the early days of life is especially well conceived and well written. The directions for percentage and home modification of milk are clear and concise. The general methods of examining a child occupy but a few pages—sufficient, however, to point out the chief points to one familiar with the routine examination of adults.

The various diseases are considered in turn. First, we have the diseases of the new-born—those resulting from inheritance, malformation, and traumatism; the diseases of nutrition—rickets, scurvy, and infantile atrophy. Referring to the etiology of rickets, the author calls attention to the important fact that the disease is not a mere wasting process, for cases of infantile atrophy, no matter how much they have wasted, do not present the lesions of rickets.

The diseases of the skin are covered in a rather superficial manner, yet one hardly expects to find a complete description of skin lesions in a work of this character. The prescriptions given under this heading will be found very useful.

The diseases of the mouth, stomach, heart, liver, pancreas, kidneys, nervous system, and, in fact, of all the organs, are described in detail.

Under the heading of the specific infectious diseases, tuberculosis is given the prominence and detailed description which its frequency merits. In the same division we also find typhoid fever, diphtheria, pertussis, and the exanthemata. The citation of the author's cases scattered throughout the text adds to its value.

The book is well printed, and contains a large number of illustrations. The colored plates are above the average, and the "x-Ray" cuts are accurately reproduced.

Though there are many competitors in the field, Rotch's work may be put along with the few standing at the top. We heartily recommend it to the student and physician.

H.

AN AMERICAN TEXT-BOOK OF PATHOLOGY. Edited by Ludvig Hektoen, M.D., Professor of Pathology, Rush Medical College, Chicago, and David Riesman, M.D., Professor of Clinical Medicine, Philadelphia Polyclinic. Handsome imperial octavo of 1245 pages; 443 illustrations, 66 of them in colors. Cloth, \$7.50; sheep or half morocco, \$8.50 net. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co., 3 West Saratoga street. 1901.

The large number of books on pathology which are constantly appearing is an indication of the importance which this science is now playing in the practical side of medicine. The American Text-Book of Pathology is indeed a valuable acquisition to the list. Among its contributors we

note the names of some of the leading specialists in their respective departments.

While we note nothing especially new, all the most recent theories and the latest investigations are outlined in sufficient detail. The introduction by Barker is a *résumé* of the present status of pathology, with a few valuable suggestions on the methods of studying pathology. The subject of tumors is discussed very satisfactorily by Ohlmacher, intoxications by Vaughn. Under the heading of special pathology Cabot has condensed his work on "Clinical Examination of the Blood" into a rather brief report. The subject of the breast is described by Warren, the skin by Montgomery. The work is edited by Hektoen and Riesman, both of whom have contributed valuable articles.

The illustration of medical works is becoming an art. This one is profusely illustrated for the most part with very accurate drawings. The colored plates, sixty-six in number, show a decided improvement in the lithographer's department.

We are glad of an opportunity to recommend this work to those interested in this subject.

H

DEFORMITIES OF THE FACE. By John B. Roberts, M.D. Second edition. Philadelphia: Medical Publishing Co.

The contents of this little work of seventy-two pages were embodied in the Mütter lectures for 1900, and are now put in print in an attractive form, with numerous photographic and diagrammatic pictures well illustrating the author's views. After a brief historical survey of the development of plastic surgery, the anatomy of the face is taken up, with special reference to those points which are concerned in deformities and the means for their repair. The special deformities of the lips, mouth, ears, teeth and nose are suggestively dealt with, and many practical hints are given as to incisions, suturing, etc. In addition to the original lectures, a chapter is added on "Suggestions for the Reconstruction of Syphilitic Noses"—a subject to which the author has given much study and experimentation. Syphilitic deformities of the nose are roughly divided into—1. Those in which one or both alae, the lobule, the columella, or both parts of the external nose have ulcerated away; 2. Those in which the internal supports of the cartilaginous nose have been destroyed and the middle of the organ has fallen inward, causing a transverse depression below the nasal bones; 3. Those in which a similar internal destruction has been followed not only by the transverse depression, but a cicatricial invagination of an ala, both alae, or the end of the nose.

The second and third groups of cases are those who so often meet with discouragement when applying for surgical relief, many men evidently believing that the syphilitic taint militates against the healing of wounds. Roberts states that this is not the case, provided, of course, there is no active inflammation at the time of operation. Various methods for the

reconstruction of damaged noses are suggested, though the details of such operations are not given. In reading this book one is struck by the close observation which the author has brought to bear on facial deformities and by the trenchant suggestions with which it is filled. J. H.

THE PHYSICIAN'S POCKET ACCOUNT-BOOK, consisting of a manilla-bound book of 208 pages and a leather case. By J. J. Taylor, M.D. Price \$1 complete. Subsequent books to fill the case 40 cents each, or three for \$1. Published by the Medical Council, Twelfth and Walnut streets, Philadelphia.

Dr. Taylor of the Medical Council has prepared this account-book. It is characteristic throughout. The salient points, as taken from the author's argument, are as follows:

"The physician must be prepared in some way or other to show his patron the state of his account whenever asked for it—on the street, on the country road or at the patron's house. * * * A pocket account-book of original entry is the only really feasible plan."

"The ordinary pocket visiting list is no record in the eyes of the law, since the services are indicated by a series of arbitrary signs, which have to be interpreted."

"This book requires no posting or re-entry. Each account is separate and distinct on its own page."

ANATOMY, DESCRIPTIVE AND SURGICAL. By Henry Gray, F.R.S., Lecturer on Anatomy at St. George's Hospital, London. Thoroughly revised American from the fifteenth English edition. In one imperial octavo volume of 1246 pages, with 780 illustration. Price, with illustrations in black, cloth, \$5.50 net; leather, \$6.50 net. Price, with illustrations in colors, cloth, \$6.25 net; leather, \$7.25 net. Philadelphia: Lea Bros. & Co.

The new and thoroughly-revised American from the fifteenth English edition of "Gray's Anatomy" has just been placed on our desk. For forty-three years this book has been used by medical students and practitioners as a text-book of anatomy, and, contrary to the usual order of things, seems to renew its youth and increase its sphere of usefulness with advancing age. After long experience in teaching anatomy, the reviewer is of the absolute opinion that there is no book in the English language which can compare with Gray as a text-book on anatomy. The new edition is in many respects much superior to those which have preceded it. Two hundred and thirty-one engravings have been introduced, and much unnecessary and confusing matter which was interpolated into the last American edition has been eliminated. For the undergraduate medical student Gray is the text-book *par excellence*. R. W.

A MANUAL OF SURGICAL TREATMENT. By W. Watson Cheyne, C.B., M.D., F.R.C.S., Professor of Surgery in King's College, London; Surgeon to King's College Hospital, etc.; and F. F. Burghard, M.D. and M.S. (Lond.), F.R.C.S., Surgeon to King's College Hospital and Teacher of Practical Surgery in King's College, London. In seven volumes. Vol. V.—The Treatment of the Surgical Affections of the Head, Face, Jaws, Lips, Larynx, and Trachea, and the Intrinsic Diseases of the Nose, Ear, and Larynx. By H. Lambert Lack, M.D., F.R.C.S., Surgeon to the Hospital for Diseases of the Throat, Golden Square, etc. Philadelphia: Lea Bros. & Co. 1901.

The fifth volume of this Manual has now been issued in due sequence, and in its general characteristics does not materially differ from those that have preceded it. It deals especially with affections of various parts of the head and the larynx and trachea. The different surgical maladies and injuries of this part of the body are treated in a brief but practical manner. Plastic operations on the face are, perhaps, more fully discussed than any other subject, and are amply illustrated. The book contains 470 pages and 145 illustrations of very indifferent execution. R. W.

ATLAS AND EPITOME OF SPECIAL PATHOLOGIC HISTOLOGY. By Docent Dr. Hermann Dürck of the Pathologic Institute of Munich. Edited by Ludvig Hektoen, M.D., Professor of Pathology in Rush Medical College, Chicago. Vol. II.—Liver; Urinary Organs; Sexual Organs; Nervous System; Skin; Muscles; Bones. With 123 colored illustrations on 60 lithographic plates and 192 pages of text. Cloth, \$3 net. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co. 1901.

The first volume of this work appeared last year; the present is the second, and the third is to follow. Altogether they will form a review of modern pathology in a rather condensed form. The book is profusely illustrated, and is perhaps one of the best of the hand-atlas series.

J. L. H.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, JANUARY, 1902.

THE DUTY OF ORGANIZATION.

THE reorganization of several local medical societies as sections of the Medical and Chirurgical Faculty brings once more to mind a duty to which attention has more than once been called in these pages, namely, the extension of professional organization in Maryland. To this necessary work the Faculty has hitherto given but desultory effort. A first-rate scheme, devised some four years ago under the leadership of Dr. Ellis of Elkton, then president of the Faculty, was operated for a single season with very encouraging results. It was not to be expected, however, that a single presentation of the subject in each of the twenty-three counties of Maryland would start the organization idea into fruitful growth. The field has not been revisited for three years, and in that time most of the anticipated profits of our first seeding have been lost for want of tillage. In those parts of the field which made the frankest bids for outside aid, and where these needs were quite easily met, there the local societies are in good condition.

Now, the appetite for the pleasures and benefits of professional association is nowhere wholly lacking, nor is any locality too remote to receive support from outside its political bounds. Gideon Gray, the isolated, wishes, no doubt, that his horizon were wider, but his outlook is about as expansive as that of his urban brother, who owes half, at least, of his acquirements to the men who knock him about. Gideon, indeed, sees the man in the crowd rather better than the man in the crowd sees Gideon, and it will, on the whole, pay better for the crowd to go to Gideon than for Gideon to come to the crowd.

When, as at this time, the largest general medical society, enrolling members in all parts of the State, meets several times a month in Baltimore, and but once a year in the counties, the county members have a right to reflect that the benefits of membership are not fairly distributed, and if they will bespeak for themselves better treatment, their claims can hardly be denied. The city members, on the other hand, will find profit in the reflection that they are somewhat tired of each other and need a change of scene. The Section on Medicine and Surgery could well afford to hold six meetings a year outside of Baltimore, wherever local medical men might unite to extend an invitation and to make reasonable prepara-

tions for such a meeting. In this way the routine work of the Faculty might be made to foster the local spirit of professional organization.

This plan would not, however, suffice to propagate our interests in those parts of the State which are at present untouched by the influence of the State Society. For this purpose the missionary enterprise of Dr. Ellis must be revived and prosecuted systematically year after year until the land is occupied. Our former experiment showed that we possess a considerable group of workers who will sacrifice time and convenience for this cause, that there is no country where they will not be met with a cordial welcome, and that we need only send these men out again and again in order to bring all the fit and honorable physicians in Maryland to one mind with respect to professional organization.

THE TUBERCULOSIS PROBLEM.

THERE is good reason to believe that the problem of tuberculosis will be taken up in a practical way at the coming session of the State legislature. The State Board of Health, at the regular meeting on December 11, took formal action, declaring that the sanatorium treatment is of demonstrated value in both the prevention and cure of pulmonary tuberculosis, and advising that funds be appropriated this winter for the purchase of a site and the erection of a sanatorium. The Board made at the same time the important suggestion that a Tuberculosis Commission be created to study tuberculosis as it appears in Maryland, to report upon its distribution and cost, and to formulate plans for its restriction.

The secretary, under instructions of the Board, laid these matters before the governor, and, from the guarded statements which have been made concerning this interview, one is encouraged to believe that his excellency holds enlightened views favoring the recommendations. If so, the movement against tuberculosis in Maryland will at least receive a powerful impetus.

So far as the establishment of State sanatoria is concerned, the action of the State Board of Health gives official approval to views that have of late years gathered great strength among medical men, and in directing the attention of the State government to the subject the Board has probably anticipated by but a short interval similar action on the part of the organized profession.

The suggestion of a Tuberculosis Commission has not, however, been broached in the profession. There have been tuberculosis commissions elsewhere, and the subject has been so thoroughly studied that the abundant data already available might be expected to guide Maryland safely in a campaign against tuberculosis.

But when it is considered that the restriction of tuberculosis is about the largest enterprise of the sort that Maryland is likely to engage in for many years to come, that no more than a beginning can, at best, be made by the present legislature, and that a palpable blunder might be fatal to the whole undertaking, it will be evident that the subject needs not so

much to be impressed upon the legislature as that it shall be presented to the people of the State in the clearest and most convincing manner, presented and represented in all its manifold relations, with all its local characteristics as the Maryland plague; so that the work, once begun, shall proceed logically, uninterruptedly, by the light of Maryland experience, and able to display year by year a balance-sheet that cannot be gainsaid.

Well-managed sanatoria, liberally supported, will undoubtedly return good profits upon invested funds, will grow into popular favor, will spread the gospel of the special hygiene of tuberculosis, and may become at last a part of some large plan for the restriction of tuberculosis. But it will be best to understand from the first that State sanatoria will form but a part of any comprehensive plan for the restriction of tuberculosis, the most expensive part, to be sure, and the part which, though making the best display of profit, may not therefore be the most profitable.

A commission will consider those phases of the problem which the sanatorium idea leaves untouched, and which will grow more and more insistent as the benefits of the sanatorium multiply. A commission will do what can hardly be done otherwise—organize an active campaign of popular education, a veritable crusade against tuberculosis. It should not be satisfied to present the practical and humanitarian aspects of the subject to the legislature, but should speak to all the people, utilizing every agency that can be bent to the purpose.

THE MAYOR SUSTAINS THE HOSPITAL COMMISSION.

THE action of the mayor of Baltimore in vetoing the ordinance to abolish the Municipal Hospital Commission is heartily approved by the profession of the city. The spirit of the message is as commendable as its purpose. The ordinance was intended to help a few men whose precious acres, surrounding the proposed site of a hospital for infectious diseases, were threatened with some sentimental injury, but no ponderable damage. In order to rescue the objectors from this two-penny alarm the council proposed to stop a work of urgent public necessity. The objectors had a lawful recourse in the courts, and were abundantly able to take care of themselves. Even if they had been in an extremity, they had no reason to tell their troubles to the council, while there was obvious reason why the council should have declined to hear them. The mayor clearly characterized the ordinance as a play out of bounds, as wilfully obstructing an important public improvement, and as reflecting unjustly upon the character and motives of men in the highest esteem. The last-named phase of the matter has since grown more objectionable, for a motion has been made in the council to investigate in detail all the proceedings of the Commission. One wonders from what viewpoint of mental, moral or political disadvantage it is possible not to know and respect the entire personnel of the Hospital Commission.

Medical Items.

THE Charity Organization Society is interested in securing better care of the feeble-minded and epileptic children in Maryland.

SIR WILLIAM MACCORMAC, President of the Royal College of Surgeons of England, died suddenly on December 4th, at Bath, aged 65 years.

DR. J. C. CLARKE of the Second Hospital for the Insane, at Springfield, proposes a direct tax of three and one-half cents for the State care of the insane.

DR. SPRATLING of the Craig Colony for Epileptics, New York, lectured at the College of Physicians and Surgeons in Baltimore on the evenings of December 6 and 7.

THE controversy over the site for the New York State Hospital for Consumptives is ended. Governor Odell has approved the choice of Raybrook in the Adirondacks.

ACCORDING to the *Philadelphia Medical Journal*, it is very rare that a man survives his 1000th jag. The maximum capacity of a man for alcohol is about 2000 gallons of whiskey in fifteen years.

DR. JAMES H. K. JACOBS died at his home in Centreville on December 19 after a short illness. Dr. Jacobs was forty-six years of age and a graduate of the University of Maryland, class of 1877.

DR. LESLIE M. SWEETNAM, a prominent surgeon of Toronto, died on December 11 at Johns Hopkins Hospital of blood poisoning. Several weeks ago Dr. Sweetnam, while cleaning his hands with a stiff brush, drove a bristle through the skin, and so implanted the infection which killed him.

DR. WILLIAM K. VAN REYPEN has been renominated by President Roosevelt for another term as surgeon-general of the U. S. Navy. Dr. van Reyphen was entitled to retire on December 18, and it had been popularly supposed that he would be succeeded by Dr. Rixey, who was the medical attendant of the late President McKinley.

A QUACK in Königsburg is said to have announced a new cure for consumption. It consists in stopping respiration in the affected lung, so keeping the diseased lung at rest. You go on breathing with the other lung.

Very simple. You stop up the nostril on the affected side. Two errors are to be guarded against—stopping the wrong nostril, and stopping both.

DURING the first week of November the Chicago Department of Health observed an increase of 33 per cent. in the mortality reports of diphtheria. The tragic occurrences in St. Louis account, it is said, for this increase. Thus the horrible blundering of one political antitoxin plant has led indirectly to many deaths through distrust of the one specific remedy for diphtheria.

AS THE new Marine Hospital on Ellis Island, New York, was nearing completion it was discovered that no provision had been made for lighting the building. The contractors showed that the specifications contained no mention of artificial illumination, and so exonerated themselves. Parts of the building will have to be removed in order to repair the defect.

OF 12,500 bottles of quinine tablets (300 tablets to the bottle) recently furnished to the medical department of the U. S. Army in the Philippines, 12,227 bottles were returned to the contractors on account of adulteration. The contractors averred that the fraud was not theirs, but that they had themselves been imposed upon. They replaced the rejected tablets with others of standard purity.

DR. JAMES E. GIBBONS died suddenly on December 2 at his home, 1102 West Lafayette avenue, Baltimore. Dr. Gibbons was fifty-eight years of age, a graduate of the College of Physicians and Surgeons of this city, and had been in active practice for thirty years. He enjoyed a large practice, and was very popular in the profession. The heart trouble which carried him off was of very long standing.

THE latest infant prodigy lives in Bridgeville, Del. Professor Wiley of the Bridgeville Academy has a son, twenty-one months old, who can spell words with toy blocks. This kid was recently sitting on the floor with a newspaper, apparently reading. When questioned by its father, the child showed an acquaintance with the contents of the paper. That boy needs watching. He will presently be smoking cigarettes. There was probably a prodigy in an earlier generation.

THE recent recommendations of the State Board of Health concerning tuberculosis have attracted the interest of the Maryland Public Health Association. The Association proposes, in conjunction with the Medical and Chirurgical Faculty and the Laennec Society, to hold a public meeting in Baltimore about the 28th of January for the purpose of arousing public interest in the subject.

A MEDICAL "gold brick" recently sold to the daily press attributes to a Pittsburg physician the discovery of a new serum for the cure of tetanus. The doctor is represented as contrasting the ease of application and sure results of his own serum with the use and effects of the old serum, to the great disadvantage of the latter. For instance, he says that the ordinary tetanus serum must be poured in by the quart through a trephine opening.

PHILADELPHIA has had 127 deaths from smallpox in the year just closed. There were 125 new cases reported during the week ending December 14, when 349 cases were under treatment. One physician has contracted the disease. There are 260 cases of smallpox in the Municipal Hospital. The city needs more hospital room for smallpox cases, but is being obstructed at every turn by property owners, who fear that a new hospital will injure their property.

THE daily papers announce that the city council of Philadelphia has appropriated \$80,000 for the construction of ten one-story pavilions for the treatment of consumption. Glass is to be used largely in the construction, and large amounts of manufactured ozone are to be liberated in the rooms. The cases are to be classified, each of ten buildings accommodating only patients of a particular class. The plan is that of Dr. John V. Shoemaker, who, in the public prints, appears as talking quite gravely about this remarkable enterprise.

DR. R. S. HUIDEKOPER died at Philadelphia on the 17th of December, aged forty-eight. Dr. Huidekoper was a graduate of the University of Pennsylvania, and the founder of the Veterinary School. He was one of the most distinguished veterinarians in America. During the Spanish-American War he was surgeon-in-chief at Chickamauga, and al-

though one of the ablest medical officers in the army medical service, he came in for an unusual amount of popular abuse. His great distinction in veterinary medicine caused his name to be bandied about as a "horse doctor."

THE mayor of Baltimore has vetoed the ordinance passed by the city council to abolish the Municipal Hospital Commission and to prevent the use of the Condon property as a hospital site. The mayor did this right thing in the right way. His message pointed out the fact that the protesting property owners had a remedy at law for any possible injury that the Hospital Commission might threaten, and that no ground had been shown for the intervention of the city council. The veto message would not have been stronger if he had told the council that there was plenty of work in their own wood-pile, or that they are not an association of amiable cats to pull any monkey's chestnuts out of the fire.

THE Maryland Public Health Association met on December 3 and 4 at Rockville. Hon. Spencer C. Jones, mayor of the town, welcomed the Association, and Mr. Henry Brauns, president, made an address, recalling his impressions of the sanitary conditions observed by him at Rockville twenty years ago. Papers were read by Dr. James Bosley on "The Control of Smallpox in Cities," Dr. Wm. L. Lewis on "The Restriction of Infectious Diseases," Mr. J. W. M. Kiger on "Municipal Methods of Control of Infectious Diseases," Dr. Wm. R. Stokes on "The Relations of the Bacteriological Laboratory to the Public and to the Practicing Physician," Dr. John S. Fulton on "Smallpox and Vaccination." Dr. August Stabler reviewed the recent formulated rules of the State Board of Health for the restriction of infectious diseases among school children. Other papers read were "Deformities of School Children Produced by Improper Seating," "Some Dangerous Contaminations of Drinking Water," by Miss E. M. White; "Post-Vaccination Tetanus," by Dr. John S. Fulton; "Some Diseases of Domestic Animals Dangerous to Man," by Dr. W. R. Stokes. There were two evening lectures, one by Dr. L. O. Howard of Washington, who gave a lantern talk on "Mosquitoes," and one by Dr. W. Sidney Thayer on "Malaria."

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GUNSHOT AND STAB WOUNDS OF THE STOMACH.

By Randolph Winslow, M.D.,

Professor of Anatomy and Clinical Surgery, University of Maryland.

READ AT THE SEMI-ANNUAL MEETING OF THE MEDICAL AND CHIRURGICAL FACULTY
OF MARYLAND HELD AT ELKTON, MD., ON NOVEMBER 16, 1901.

THE subject of penetrating wounds involving the walls of the stomach has in the past few months claimed the attention of the whole civilized world, and it seems to be an appropriate theme for discussion at this time. Wounds of the stomach are usually inflicted with murderous intent, and are either caused by the discharge of firearms or by cutting with some sharp-pointed weapon.

When a person has received an injury which may have penetrated his peritoneal cavity and have injured the viscera, the first duty of the physician will be to ascertain whether or no such penetration has occurred. The location of the wound of entrance will frequently afford presumptive evidence that such internal traumatism has been sustained. If the bullet or stab wound is situated on the anterior abdominal wall, the presumption is very great that the peritoneal cavity has been penetrated, and that underlying organs and structures have been injured. When the entrance wound is located in the back, some of the hollow or solid viscera may also have been wounded. Wounds of the thorax, below the fifth rib, must also be considered as possible penetrating traumatisms of the abdomen. Any wound, therefore, which may penetrate the abdomen ought to be carefully explored, not by a probe, but by incising the track of the bullet or knife. Sometimes the omentum may escape from the external wound, even when it is situated at the costal margin, which will be proof positive of penetration of the abdomen.

In wounds of the abdomen, vomiting blood is an almost certain sign that penetration of the stomach has occurred. Ordinarily there will be no escape of stomach contents externally. In wounds of the intestines there may be fecal extravasation through the external orifice.

Shock is frequently present, and it is not to be considered as a contraindication to operation, as it is often due to hemorrhage, and can only be relieved by catching the bleeding vessels. All suspicious wounds must be followed with the knife, and if they lead into the peritoneal cavity, a complete laparotomy must be done. If there is doubt whether the wound has gone into the abdominal cavity, it is safer to do a laparotomy, and ascertain by inspection whether any injury has resulted to the viscera within.

The stomach is situated in the left hypochondriac and epigastric regions, under cover of the ribs and diaphragm, its upper part covered by the liver, its left extremity being in close relation with the spleen and the left kidney and suprarenal capsule, whilst the pancreas lies behind it, at its lower border. A portion of its anterior surface is in contact with the anterior abdominal wall. Its pyloric extremity is more or less under the cover of the right lobe of the liver. The arterial supply is very rich, being derived from the splenic and gastric, and pyloric and gastro-duodenal branches of the hepatic, all these vessels being of large size and forming a complete vascular ring around this organ. The relations of the stomach will vary with the degree of its distension. From these anatomical considerations it will be seen that the stomach is considerably protected from external injury by its location and its relations to surrounding parts, but when a penetrating traumatism has occurred, the results are likely to be especially serious, since many other structures may be injured as well as the stomach. A penetrating wound of the epigastrium may involve one or both walls of the stomach without inflicting any other serious injury, or the pancreas may be wounded, or the aorta or some other large vessel may be opened. If the direction of the missile or knife is obliquely to the right, the gall-bladder, liver, duodenum, colon, portal vein, vena cava, bile ducts, or kidney may be injured; if to the left, the spleen, kidney, and colon. If the missile ranges downward, the stomach, colon, pancreas, and small intestines may all be perforated, as in a case coming under my care one year ago. In my opinion, those cases are the most serious in which the wound of entrance is over the ribs, where the pleura, lung, diaphragm, and liver are penetrated before the stomach is reached.

Patients are frequently greatly shocked by the injury, and it may be the first duty of the medical attendant to attempt to overcome this by the administration of strychnia or digitalis, and especially by the infusion or transfusion of hot normal salt solution into the tissues or veins before the surgeon reaches the sufferer. At the earliest possible moment the case should be conveyed to a well-equipped hospital, if one is within reach; if not, a surgeon should be called to take charge of the patient at his house. There should be no temporizing. Get your patient to a suitable place and into competent hands at once, if possible. Do not insert a dirty probe or an un-

cleansed finger into the wound, but lay some sterile gauze or clean cloth over the wound until more radical treatment can be instituted.

When the case reaches the surgeon, it should be cleaned and prepared at once for an operation. An anesthetic should be administered and the track of the bullet or knife explored, and if it leads into the peritoneal cavity, laparotomy must be done. The incision, in some instances, especially in stab wounds, may be made at the site of the entrance wound. In other cases a median laparotomy may be preferable, and this must be left to the judgment of each individual operator. When the abdomen has been opened, the lesion of the stomach may be exposed at once, and if it is situated on the anterior surface of the organ, may be easily sutured. If the injury involves both surfaces of the stomach, the great omentum must be torn through in order to get at the posterior wound. When the wound is situated high up towards the cardiac orifice or at the fundus, much difficulty will be experienced in suturing the perforations, and it may be necessary to make an additional incision in order to do so, or to divide one or more ribs. Silk is the best suture material, and it matters but little what form of suture is made use of. After closing the perforations in the stomach, careful search should be made for injuries to other organs, and if any are found, they must receive appropriate attention, all bleeding points being controlled by ligature, clamp, or pressure. The peritoneal cavity must be carefully cleansed by mopping and irrigation, if there has been any escape of the contents of the stomach or hollow viscera. When there has been contamination of the peritoneal cavity, gauze drainage should, in my opinion, be employed, though this a moot point with surgeons. Some surgeons, after carefully cleansing the peritoneum, close the abdominal incision tightly.

The after-treatment is very important. Nothing whatever should be taken into the stomach for four or five days, by which time the wound ought to be firmly healed. Thirst, which is very distressing, should be alleviated by the instillation of normal salt solution into the rectum, one-half a pint every four or six hours, and by subcutaneous infusion of the same solution, one pint twice daily. Nutritive enemata of milk, sherry wine and eggs should also be given three or four times in the twenty-four hours. After four or five days, beef juice or predigested liquid food may be administered in small quantities, or milk with lime water, gradually increasing the quantity taken. Solid food ought not to be allowed for two to three weeks.

The prognosis of wounds of the stomach must vary with the particular complications of each case. Without operation such wounds are almost invariably fatal. In the Civil War four incised and punctured wounds of the stomach were observed, all of which terminated fatally. "One incontestable recovery from a shot perforation, a few recoveries from shot wounds in the gastric region, in which the

diagnoses were not determined unequivocally, and nearly sixty fatal cases of more or less complicated shot wounds of the stomach" were observed. In no case was suture employed. At the present time by timely operation more than 50 per cent. of such injuries ought to be recovered from. My personal experience seems to indicate that incised wounds of the stomach are less fatal than those caused by shot. The dangers are, first, from hemorrhage and shock, and later from general peritonitis and sepsis. In one notable case gangrene occurred, which seems to have been a unique complication.

The following cases have been under my care at the University Hospital, Baltimore:

GUNSHOT WOUND OF THE STOMACH.—LAPAROTOMY—RECOVERY.

S. W. R., aged fifty-eight years, white, male, admitted July 4, 1895. Whilst crossing a vacant lot some boys fired off a small cannon loaded with buckshot, the boys being on an elevation. A shot struck the patient in the left side below the apex of the heart. He came to the hospital on the cars, but walked more than two squares.

Shortly after admission he vomited blood in clots, showing an injury to the stomach. An incision was made in the left side parallel with the costal arch, and the stomach was exposed. A hole was found in the anterior wall of the stomach, from which gas escaped, but no liquid or solid contents. No other wound was found in the hollow viscera, and the bullet was never discovered in the feces, so it is uncertain what became of the missile. The wound was sutured with Lembert sutures, and the discolored edges of the bullet track were removed with scissors, and the abdominal incision sutured. Subsequently he vomited clots several times. The external wound suppurated, but as the peritoneal cavity was shut off, no harm resulted. He was kept in bed, absolutely quiet, and no food allowed for several days. Very little reaction followed the injury and operation, and he went home well in a month.

GUNSHOT WOUND OF STOMACH AND SPLEEN.—DEATH FROM SHOCK.

F. S., colored, male, aged twenty-three years, was admitted to University Hospital on the night of September 27, 1898. Whilst attempting to escape from a policeman he was shot in the left side over the spleen, between the eighth and ninth ribs, the ball passing through the spleen and into the stomach at its great extremity, the wound being about one inch in length. He was brought at once to the hospital, and laparotomy was done without delay. The stomach was full of undigested food, which had escaped into the greater and lesser peritoneal cavities. The wound in the stomach was sutured with great difficulty, and the peritoneum was cleansed as well as possible, and the incision left partly open. Gauze was placed

in the cavity for drainage. The patient was badly shocked, and died the next day. At the autopsy the ball was found in the stomach.

GUNSHOT WOUND OF CHEST AND ABDOMEN.—DEATH FROM SHOCK AND HEMORRHAGE.

K. O. N., white, female, aged about thirty years, was admitted to the hospital on December 25, 1899. She had been shot with a pistol, the bullet entering the left side in the anterior axillary line, fractured the seventh rib, and passing through the lung and diaphragm, entered the abdominal cavity, then passed through the liver and both walls of the stomach, and lodged in the left psoas muscle. Laparotomy was done, and with much difficulty the anterior stomach wound, which was situated near the entrance of the esophagus, was sutured. The posterior opening could not be reached. There was much bleeding from the liver, and the lesser peritoneal cavity was badly contaminated. Gauze was stuffed behind the stomach, as well as in front, and the abdominal wound left open. The patient was much shocked, and in spite of free stimulation, died the next morning, about twelve hours after being shot.

GUNSHOT WOUND OF STOMACH AND INTESTINES.—LAPAROTOMY—DEATH FROM PERITONITIS.

A. T., colored, aged forty-four years, was admitted to the hospital on November 6, 1900. The ball entered above and passed through both walls of the stomach, and then passing downwards, penetrated the small intestines in many places, and lodged under the skin of the buttocks. The holes in the stomach and small intestines were sutured. There was much extravasation of stomach and intestinal contents, which could not be thoroughly removed. Gauze packing was employed. Peritonitis promptly supervened, and he died in two days. This case can scarcely be classified as one of stomach wound, as the intestinal coils were much more extensively injured.

STAB WOUND OF BOTH WALLS OF STOMACH.—LAPAROTOMY—RECOVERY.

Mrs. M., white, aged fifty-three years, of slender build, was admitted to the hospital about 4 o'clock on the afternoon of November 23, 1896, with a stab wound of the abdomen. The wound was about one-half an inch in length, situated near the middle line of the abdomen, and about three inches below the ensiform cartilage. The patient was much shocked, the pulse rapid and weak, and the extremities cold.

A transverse incision, including the stab wound, was made across the abdomen, and at once the odor of beer was perceived, and par-

ticles of partly digested vegetable matter were found loose in the peritoneal cavity, also blood-clot. A bleeding wound was found on the anterior wall of the stomach, the vessels were tied, and the opening closed with Lembert sutures. The great omentum was torn through, the posterior wall of the stomach exposed, and a similar wound closed on its posterior aspect. The abdominal cavity was mopped out and then flushed with hot sterile water. The abdominal incision was closed without drainage. The patient was freely stimulated whilst on the operating table, and strychnia sulphate, 1-30 grain, was given every three hours subsequently. Nutritive enemata of sherry wine and eggs were given every four hours. On the fourth day pellets of ice were allowed, and on the eighth day milk in tablespoonful doses. On the fifteenth day milk toast and eggs were allowed, and gradually she was permitted to resume an ordinary diet. Her highest temperature was 99.4° and pulse 96. She was discharged well in six weeks. The operator in this case was my associate, Dr. St. Clair Spruill.

STAB WOUND OF LEFT SIDE, SEVERING THE CARTILAGES OF THE LOWER RIBS AND PENETRATING THE STOMACH.—RECOVERY.

J. W. P., white, B. & O. brakeman, admitted to the hospital November 2, 1897, at 10.30 P. M. One hour previously he was stabbed in the left hypochondriac region, the cartilages of the costal arch being severed and the omentum protruding. Laparotomy was at once done, the protruding omentum replaced, and an incision into the stomach closed with a few silk sutures. No escape of stomach contents had occurred, and the abdominal incision was closed. The after-history is uneventful, and he made a prompt recovery.

STAB WOUND OF THE STOMACH.—LAPAROTOMY—RECOVERY.

Patient entered the hospital about 3 A. M. on October 6, 1901, very much shocked, with two punctured wounds, one directly over the fourth left rib, about two inches from the median line, which, striking the rib, glanced and passed along under the skin toward the median line for about two inches, but did not enter the pleural cavity. The second wound was a similar stab, just below the costal border on the left side, and about two and one-half inches from the median line. This stab passed upwards and inwards, and punctured the anterior wall of the stomach, the stomach being somewhat distended with contents, so that the posterior wall was not perforated.

The patient was put to sleep with ether, which he took well. His pulse being quite rapid and weak from the start, due to the loss of blood, he was given a hypodermic of strychnine, 1-30 gr., and

shortly after falling asleep was infused with about 700 cubic centimeters of normal salt solution.

An incision was made from the costal border on the left side, passing through the left rectus muscle and extending down to about three inches above the pubis. When the peritoneum was opened a large quantity of blood gushed out. In all there was about 700 cubic centimeters of blood lost. There was a considerable amount of stomach contents extravasated through the intestines and omentum. The first thing examined was the stomach, and there was found an opening about the center and half an inch above the border of the greater curvature, the mucous membrane protruding in a rosette form. The cut was about one inch in length, and there were two small arteries pumping. These were caught and ligated. The mucous membrane was turned in by two mattress sutures, which were placed near the border of the wound, and then another row of mattress sutures were put in directly over the first; then the whole thing was sutured over by a continuous suture (continuous Lembert).

The spleen, intestines, etc., were gone over, but no injury found. Large quantities of clotted blood were gotten out of the dependent portions of the peritoneal cavity. The intestines and omentum were washed off, the whole peritoneal cavity was flushed out with hot normal salt solution, and after getting it as clean as possible, gauze was tucked around in every direction for drainage. The lower half of the incision in the belly wall was sewed up with interrupted through and through silk-worm sutures. As much normal salt solution was allowed to remain as the belly would retain. The patient had by this time become very much shocked, and was rapidly dressed in the usual way and hurried to the ward, where a hot normal salt enema was given him and hot-water bags placed about him.

Orders for patient were as follows:

Strychnine sulphate, gr. 1-30. Hypodermic every three hours.

Normal salt enema, $\bar{\text{z}}$ 6, with whiskey $\bar{\text{z}}$ ss. every eight hours.

Nutrient enema $\left\{ \begin{array}{l} \text{whites of eggs, II.} \\ \text{milk, } \bar{\text{z}} \text{ v.} \\ \text{whiskey, } \bar{\text{z}} \text{ ss.} \end{array} \right\}$ every eight hours.

One or the other of these enemas coming every four hours.

The patient got absolutely nothing by mouth until the sixth day, and then was allowed a half-ounce of water. On the seventh day he was allowed a half-ounce of water every two hours. On the eighth day he was allowed half an ounce of water with the white of one egg every two hours. A gradual but slow increase of diet was permitted until the patient was able to take solid food. After the fifth day we began to remove the drains, which caused considerable amount of pain and discomfort.

This patient was operated on by my assistant, Dr. A. A. Matthews.

THE TREATMENT OF INCIPIENT PULMONARY TUBERCULOSIS.

By George C. Johnston, M.D.

READ AT THE TRI-STATE MEDICAL ASSOCIATION AT CUMBERLAND, MD.,
DECEMBER 19, 1901.

THE subject of incipient tuberculosis needs no apology. We will omit the customary *vorspeil*, with its statistics to prove that we must all get it if we live long enough, and we will not even call it the Great White Plague. Like cancer, it needs no accessories; in its gaunt nakedness it is horrible enough. But it is a curable disease, and as such we shall consider it. This statement requires but one qualification. It is a curable disease if it be diagnosed early.

Not every physician is an able diagnostician, but if provided by nature with one good eye, one good ear, a few fingers, and the amount of brains that it takes to make a living today, he can perfect himself in this, the most important part of his art.

The diagnosis being made, what means are at our command to combat the disease?

I shall not mention the many methods that are of interest chiefly in a historical way, and serve to show the manner in which ideas of etiology and pathology have swayed therapeutics, but shall confine myself to the lines of treatment that, in my own hands and those of others, have shown themselves to be of actual value. These are:

1. Remedial measures other than drugs.
2. Tonic medication.
3. Specific medication.
4. Climatic treatment.

Under the first heading we will consider all the measures which tend to increase weight, strength and vitality.

As a usual thing, we find a phthisical candidate with a flat, sunken chest, poor muscular development, and a chest expansion of two and one-half to four inches. This it has been my rule to try to increase to six inches by suitable exercises. That which has stood the test of time with me is as follows: The patient, with the chest covered with light, loose clothing, stands erect in the open air or in a room with the window open. With arms hanging loosely at the sides, shoulders well back and head erect, he exhales as much of the residual air as possible. He then inhales through the nose slowly till the chest is filled to its greatest capacity. The arms are then raised, palms forward, till the thumbs touch above the head, and are then, while in rigid extension, returned forcibly to the sides. The air in the lungs is then forced out slowly against resistance offered by the closed lips. This is repeated at intervals of a half-minute. This exercise may be graded from mild to severe, and will

soon develop the apices. At first, especially in anemic patients, an attack of vertigo is apt to be produced, and the patient should stand near some object of support, such as the foot of the bed.

While walking in the open air daily a full inspiration should be taken and held for some ten or fifteen paces, and then slowly exhaled, and this repeated as often as not to cause fatigue. All exercises intended for tubercular patients must follow this important rule.

The theory of absolute rest for a tubercular apex does not appeal to me. Rigid exercises of the muscles of neck, arms and abdomen should be taught, slowly at first, and the weight carefully watched. Should a loss of one pound in the first week occur, it may be disregarded. A greater loss of weight than this should cause interruption of the exercises for a time, those of the chest excepted. Massage of the chest is of value, and if constipation exists, abdominal massage should be taught the patient.

Having by the above measures developed a pair of lungs competent to aëreate the blood, it is of the highest importance that they shall at all times have a supply of pure oxygen; hence as much time as possible must be spent in the open air. Teach your patient that second-hand breath is to him the most virulent poison, whether it be in church or theater, and when laden with the fumes of tobacco, so much the worse. Cigarette-smoking, despite its seductions, must be absolutely interdicted. As little smoking of any kind as you can contrive should be allowed, and always in the open air.

The patient should sleep on a hard mattress. A feather bed with a few copious night-sweats soaked in it is not a pleasing object.

Use enough blankets to keep the patient warm, and air them three hours daily. A window in the bedroom or an adjoining room should be kept open, regardless of the weather and your amateur assistants. The bed may be protected from draughts by a suitable screen if necessary. Baths should be taken frequently, and always in a warm room, a portion of the body bathed and dried, and when complete, followed by a hot plunge and friction with a coarse Turkish towel, and then to bed; a glass of milk, malted milk or cocoa, hot, and then to sleep.

Cohabitation should never follow this bath, and should at all times be restricted to reasonable bounds. In my experience a great many patients are very liberal in their estimate of what constitutes reason in this important matter.

If your patient is to be cured, his stomach must remain unimpaired. Valuable as the method of forced feeding is, it must be used intelligently, and the stomach never coaxed to take more food than it can prepare for assimilation. Autointoxication is not an aid in the treatment of incipient tuberculosis. When a patient is found who can take milk, he should take it warm, and slowly, and preferably one hour before meals and at bedtime. Meat should be

eaten in the form of roast beef, rare or broiled, with lamb as a change. The administration of quantities of raw chopped beef has shown no results in my hands save to increase the existing repugnance to all forms of meat. Eggs in every form save hard-boiled are indicated. Peanuts are a valuable article of diet, as are bananas and sweet potatoes if tolerated. I am a believer in the use of malt liquors in this disease. Beer, well aged and poured light, may be taken up to five pints a day if it agrees with the stomach. A small Manhattan cocktail a half-hour before meals will stimulate appetite and digestion.

Under this heading should be classed electricity and the inhalation of ozone. Personally, I prefer static and faradic electricity. Those patients whose place of residence permits, I am in the habit of treating daily thus: A foot-plate is placed beneath the feet, and a connection made to the negative pole of a good-sized coil of medium coarse winding. A moistened sponge is then placed upon the back at the level of the seventh cervical vertebra, and a strong current passed for ten minutes. The patient then replaces his coat and shoes and takes his seat upon the insulating platform of the static machine, and is connected with the positive side of the machine. The head breeze is employed for five minutes, then a point electrode is placed at a distance of six to eight inches from the affected apex and allowed to collect for five minutes. An ozone generator is then suspended before the patient, and he is encouraged to breathe as much ozone as he can without exciting cough. In order to obtain any benefit from static treatment a powerful machine must be used, one capable of giving a 12-inch spark and lighting the largest Crook's tube at a 30-35 vacuum.

Under the second head come those drugs which are given in the hope of increasing the flesh and strength of the patient, and thus assisting nature to throttle the disease. Cod-liver oil, iron, quinine and strychnine, hypophosphites, etc., are all of value, but in themselves woefully insufficient. Strychnia should be pushed to a daily dose of 1-10 gr., and under its use appetite usually increases. Cough is generally controlled by cod-liver oil, but the stomach is taxed by it, and few patients will tolerate it. Cough, if annoying, is best controlled by Terpin hydrate and codeine in the form of the elixir, or by one full dose of codeine at bedtime. Arsenic in small doses is of value, and often increases weight. A pair of scales weighing accurately are a necessary part of a physician's outfit. Such a scale with a capacity of 250 pounds may be bought for \$13.

The weight of all tubercular patients should be taken daily if possible, and at the same hour each time. The weight card is the surest and simplest indicator of the progress or decline of the patient.

Iron in the form of fresh Bland's mass is indicated for the anemia usually present. The much-advertised peptonates of iron are of

more value to their respective owners than to the patient. Over-medication is to be avoided in these cases, and nothing should be exhibited save where a proper indication exists.

Under specific treatment come those remedies which are directed towards the process or its cause, the bacillus of Koch. As a type of these preparations may be taken the ill-fated tuberculin of Koch, and its successors, Klebs' tuberculocidin and von Ruck's watery extract of tubercle bacilli. These fluids have for their object the generation within the system following their injection of substances inimical to the life of the bacillus of Koch. Theoretically, they are right; practically, they are dangerous, save when handled by one fully alive to their enormous potentiality for harm. In the hands of the discoverer they are, as might be expected, of great value, and safe. The work of Dr. von Ruck in this connection promises much for the future of this line of treatment.

The attempt to cure tuberculosis by creosote is no longer seriously made. It is as sensible to attempt to saturate the tissues with creosote as it is to use ointments of silver to cure puerperal septicemia.

There remains one thing—the use of those substances which increase leucocytosis in the attempt to aid nature in her efforts to wall off the affected area. This is rational, and it is efficacious. The best agent for this purpose is cinnamic acid. The objections to it are its insolubility and its tendency to produce local insult at the site of injection. These objections are removed by the use of the sodium salt. The solution of sodium cinamate keeps indefinitely if properly cared for, and I have never seen it cause more than a passing sense of discomfort at the site of injection. The dose should be pushed to twenty minims a day. Under its use weight increases, cough lessens and appetite returns. In advanced cases it is useless, and in cases of mixed infection its use is sometimes followed by rise of temperature. Its use in many cases has convinced me that it has actual antitubercular powers. It is harmless, and free from the peculiar dangers of those preparations made from the bacillus or its toxins. Under the name of Hetol a similar preparation has been extensively used abroad with excellent results. It is well worthy of a trial in early cases.

Finally, the effect of climate on an early tubercular deposit. And this is the reason why the man who devotes himself to the treatment of pulmonary troubles must look for most of his remuneration in the consciousness of duty performed. Today, in spite of all our vaunted therapeutics, the fact remains that a suitable climate, without drugs, will do more to cure this class of patients than the most careful attention of a competent physician handicapped by unfavorable climatic conditions. When a patient whose means permit is discovered to be suffering with incipient tuberculosis, duty demands that he be placed under the most favorable conditions for recovery.

and one of our friends along the Rocky mountain plateau receives the patient and his coin.

A year spent in investigating the climatic advantages of the West, Southwest and South of this country has taught me certain facts which are a help in the decision of the question which presents itself with each of these patients—Where shall I send this particular case? If the patient be nervous and troubled with insomnia, Colorado Springs will be found too high, and Las Vegas will suit him. If he sleeps well and is not nervous, he may remain in Colorado Springs from May till November, and then go down to San Antonio for the winter. Denver I do not like in the fall and winter. While the air is usually dry, yet it becomes quite cold and raw at times, and high winds prevail with heavy snows. Colorado Springs, but seventy miles distant, has a much better situation. It is sheltered on the west by the Pike's Peak range, on the north by the divide, and on the east by high bluffs. It is open to the south only, and has not the variable weather that Denver experiences. Moreover, it is quiet, and there is not the inducement to overexertion that is always present in a large city. A tubercular patient, if sent early to this locality, has, in my judgment, the best possible chance for recovery.

The pine woods of Georgia and South Carolina are of great value in the treatment of asthmatic and bronchial troubles, but the only result in tuberculosis that I have seen there, despite the gilded reports of the promoter, is to postpone the inevitable for a variable length of time. For advanced cases, with cavity formation, hectic, etc., this region answers well; the balsamic odors borne from hundreds of miles of the long-leaved pine act kindly upon the sufferer, loosen the expectoration, stimulate appetite and digestion, and promote restful sleep, free from the cough that makes the night dreadful to so many of these victims.

But the effect is only palliative; hence I am forced to send those in a curable stage to Colorado or New Mexico, in the hope that the continual sunshine and the forced respiratory exercises, due to altitude and extreme dryness of the air, may do as much for them as it did for me. Those whose means will not permit the long journey and abstinence from their accustomed means of livelihood must remain in our charge and be aided by every means in our power in the unequal fight for health and life. And the physician under whose generalship this battle is to be won or lost must engage in it not with the hopelessness bred of despair, but with the fixed determination to forget the odds till victory be won.

Let him use not only the well-tried weapons of old, but the newer and more powerful ones, and his reward will be that the patient saved will doubt and express the doubt as to his ever having had tuberculosis.

For to the laity tuberculosis means consumption, and consumption means *death*.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

RECURRING EPISTAXIS ASSOCIATED WITH MULTIPLE TELANGIECTASES OF THE SKIN AND MUCOUS MEMBRANES.

Osler (*Johns Hopkins Hospital Bulletin*, November, 1901) reports three interesting cases of the above condition, supplementing the report with some valuable reflections regarding the occurrence of angiomata and the conditions in which an increase is frequently noted.

Only one case of a nature similar to Osler's three cases has been reported previously (by Rendu, *Gaz. des Hopitaux*, 1896, p. 1322). In Osler's first case a consideration of the family history showed that the father had been subject to frequent bleedings from the nose, although showing no especial tendency to bleeding after cuts. One sister had been subject to epistaxis from childhood, while a second sister had frequently bled from the mouth and nose. The child of the patient had bled occasionally from the nose, and one brother had had epistaxis from childhood.

The physical examination of the patient showed that the face presented a very unusual appearance, owing to the large number of dilated venules and capillary and venous telangiectases. The tongue along its edges and at its tip also showed a number of telangiectases, while numerous angiomata were found on the mucosa of the septum.

The red-blood count was 2,980,000 per c. mm., with between 15 and 20 per cent. of hemoglobin, while the coagulation time varied between five and seven and a-half minutes. The patient improved during his stay in the hospital, and was under observation during a period of almost four years.

The second case was the brother, referred to above, who gave a somewhat analogous history and exhibited lesions of a very similar nature. He died of cancer of the stomach, and the post-mortem examination showed also angiomata in the mucous membrane of the nose and of the stomach.

The third case was one of recurring epistaxis from the tenth year, in a man now fifty-four years of age, with multiple telangiectases of the skin and mucous membrane of the nose and mouth. The family history in this case was, however, negative.

Osler describes three varieties of angiomata apart from the big naevi and angiomata with surgical relations: (1) The pin-point, punctiform, capillary angioma, of which few skins lack examples;

(2) the solid nodular naevus, ranging from 1 to 4 or 5 mm. in diameter, forming a definite little tumor, and very common on the back, and (3) the spider angioma, formed by (a) three or four dilated veins which converge to and join a central vessel, or (b) which unite at a central bright-red nodule projecting a little beyond the skin.

Angiomata, according to Osler, have a curious relationship with affections of the liver, appearing on the face and other parts in cirrhosis, cancer and chronic jaundice from gall-stones.

THE INITIAL LESIONS IN SMALLPOX.

The recent epidemic of smallpox in Philadelphia, besides calling attention to some of the defects in the views regarding municipal hygiene in that benighted city, has also been of value in furnishing material for a careful study of the mode of onset and cause of this disease in a large number of cases.

Welch and Schamberg (*Philadelphia Medical Journal*, December 21, 1901) devote especial attention in their article to a consideration of the initial symptoms, 100 cases in the Municipal Hospital being chosen for this purpose, there being absolutely no attempt at selection of any particular type of the disease.

This list included twenty-eight case of confluent smallpox, fifteen patients with very profuse and semi-confluent eruptions, twenty-nine eruptions of moderate severity, and twenty-nine cases of mild varioloid. The mortality in this series of 100 cases was twenty-two.

Headache was the most common initial symptom, as shown by the following table, giving the percentages of the various symptoms: Headache, 86 per cent.; chills or chilliness, 78 per cent.; backache, 70 per cent.; vertigo, 57 per cent.; vomiting, 55 per cent., with nausea in 10 per cent. more of cases.

An effort was also made to determine the earliest symptoms observed by the various patients, with the following results: Chills were the first symptom in twenty-five cases, headache in twenty-six cases, backache in sixteen cases, vomiting in nine cases, general aches and pains in seven cases, vertigo in two cases, while in two cases only was there complete absence of initial illness—one a case of mild varioloid, the other an eruption of moderate severity. The initial sickness was always well marked in the severe cases, although the symptoms were not always the classical ones, and, on the other hand, the pure classical picture of the mode of onset was presented by some of the cases with very mild eruptions.

In this series of cases the initial stage of the disease lasted from forty-eight to seventy-two hours, rarely less, and sometimes more than this, while in some cases the temperature did not fall with the appearance of the eruption, for in Welch and Schamberg's experience there was usually no decided remission in the fever until the second or third, and sometimes fourth day of the eruption.

Three types of skin rashes are mentioned as liable to occur during the initial stage of the disease, developing usually upon the second day of the fever and disappearing ordinarily in from twenty-four to forty-eight hours. The frequency of these rashes differs markedly in the different epidemics. These types are the morbilliform rash, ephemeral, not elevated, irregularly distributed, and the commonest of the three; the scarletinaform, less common, inconstant in distribution and extent, and equally evanescent, and the purpuric or hemorrhagic variety, consisting of closely-aggregated petechiae of from pin-point to pin-head size, very closely juxtaposed, and having a predilection for the lower portion of the abdomen, the groins and the inner aspects of the thighs.

An interesting fact in connection with the cases of smallpox admitted to the Municipal Hospital is that from the prodromal symptoms the majority of cases were believed to be cases of typhoid fever by their attending physicians.

A NEW METHOD FOR DETERMINING APPROXIMATELY THE AMOUNT OF HYDROCHLORIC ACID OF THE GASTRIC CONTENTS.

Einhorn (*Fortschritte der Medicin*, 1901, No. 21) describes a simple yet valuable method of determining approximately the amount of free hydrochloric acid in the gastric contents, the method being especially valuable in those cases in which but a small quantity of gastric contents has been obtained.

Pieces of filter paper are saturated with a one-half per cent. solution of dimethyl-amido-azo benzol, and, after being dried, are ready for use. A small amount of the gastric contents is placed upon this, and if free hydrochloric acid is present a red color is obtained. If such is the case, one drop of the unfiltered stomach contents is thoroughly mixed with two drops of water, and the same test is made. If a red color is again obtained, one adds one or two drops more of water and proceeds as before, and the process is continued until the diluted gastric juice no longer reddens the test-paper. From a large series of comparative experiments in this connection, Einhorn believes that this method is quite approximately correct, and further has determined that if, after an Ewald test meal, in a dilution of from three to six, the color reaction is still present, the gastric juice is normal as regards free hydrochloric acid, while if below three the condition is one of subnormal acidity, and if above six of hyperchlorhydia.

THE TREATMENT OF PNEUMONIA BY ANTIPNEUMOCOCCUS SERUM.

Sears (*Boston Medical and Surgical Journal*, December 12, 1901) reports twelve cases of lobar pneumonia treated by the antipneumococcus serum, the effort being made to select only those cases of which treatment seemed likely to modify the outcome, thus exclud-

ing those in which death seemed practically inevitable, and also those whose age or general condition made recovery highly probable. An attempt was also made to select only those cases which entered the hospital early in the course of their illness, although this requirement could not be rigorously fulfilled.

Other measures were not excluded, and cold sponging, oxygen inhalation, salt infusion, and various stimulants were used in the cases when their administration seemed desirable. Eight of the twelve cases were over thirty years old; of the other four cases, one was excessively alcoholic, and two others confessed to its moderate use.

Of the eight cases over thirty years of age, three used alcohol to excess, two others had mitral regurgitation and nephritis, and one arteriosclerosis. Albumen was found in the urine in ten cases, in four in considerable amount.

Three patients died, i. e., the mortality was about the same as the usual hospital rate of all patients with this disease.

In the nine recoveries the temperature returned to normal in one on the fifth day, in one on the sixth, two on the seventh, three on the eighth, and two on the ninth. Thus the serum treatment did not seem to shorten the course of the disease, and the only conclusion that can be drawn in this connection is that the course of the disease is not lengthened.

The treatment, according to Sears' experience, is certainly no specific against the pain resulting from the inflamed pleura, and "yet it seemed, even in the fatal cases, that the patients were peculiarly comfortable" under its use.

It was impossible to assert that the injections had any effect upon the fever in these cases.

No ill-effects, except occasional skin eruptions, with pain and swelling of the joints, were met with. "A great practical objection to its use is our ignorance of the strength of the serum and the consequent inability to measure the dose."

Taking all things into consideration, however, the unfavorable character of the material, and the fact that in but four cases the injection was given before the third day, Sears concludes that the results of the use of the serum in these twelve cases justifies a further trial of this form of treatment.

DURATION OF IMMUNITY BY DIPHTHERIA ANTITOXIN.

Jump (*Philadelphia Medical Journal*, January 11, 1902) considers this most practical and important point, deducing his conclusions from a careful and critical review of the literature, and from his own observations in this connection.

From a consideration of the experiments of Behring, Rubens, Bornstein, and Bullock on animals, and the results of Lohr, Riether,

Morrill, Biggs and Guerard, Donald, and himself in the case of human beings, regarding the length of time which the immunity produced by the antitoxin of diphtheria lasts, Jump concludes:

1. That as diphtheria antitoxin is practically harmless, all exposed persons should receive an immunizing dose in proportion to age.
2. That 250 units should be given to children under two years, and 500 to all others.
3. That the immunity will last at least three weeks, provided a reliable antitoxin is used.
4. That all exposed persons should be removed from infected surroundings, either by thorough disinfection of their own quarters, or by removal to other places. If this be impossible, the immunizing doses should be repeated every third week.

THE AREA OF DULLNESS TO PERCUSSION OF THE THYMUS GLAND.

Blumenreich (*Virchow's Archiv*, Vol. CLX, Part I), from the results of a carefully-performed series of experiments in which he percussed out the area of thymus dullness in fifty-five cases (children), and compared the results so obtained with the autopsy findings, arrives at the following conclusions:

1. There is a well-determined area of thymus dullness, this area being in the form of a triangle, the sides of which are unequal, with the line joining the two sterno-clavicular joints as its base line, and its apex, which is not sharp, but rounded, at the level of the second rib, or a little below it.
2. The larger division (half) of the triangle extends to the left side.
3. Dullnesses which extend by one centimeter or more beyond these limits, and encroach upon the area of pulmonary resonance, usually found between the lower border of the thymus and the upper border of the heart, indicate an enlargement of the thymus, if other causes can be eliminated.
4. We can surely expect to find an area of thymus dullness to the end of the fifth year.
5. With the increasing age of the child (from the beginning of the sixth year on) the frequency of the presence of an area of thymus dullness diminishes.
6. Markedly swollen anterior mediastinal lymph glands give no dull note, while if these glands are caseous, they do give a dull note.
7. In cases of undoubted scrofula and tuberculosis, the area of dullness to be made out over the manubrium and upper portion of the body of the sternum is more probably due to the presence of caseous glands than of the thymus. The percussion of the thymus must be done gently, with the use of extremely little force.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

Assisted by Joseph Hume, M.D.

CONTUSION OF THE KIDNEY AND ITS TREATMENT. Delbet.
Annales des Maladies des Organes Génito-Urinaires, June-July, 1901.

This is an excellent detailed study of contusions of the kidney, in an endeavor to determine the time and conditions at which the surgeon should interfere, and the operation which promises the best results. To answer these questions the writer reviews the literature, analyzes 319 cases, makes various experiments on animals, and states the results of his own experience, giving at the same time a very extensive bibliography. Out of 225 cases which received no surgical treatment, there were 122 recoveries and 103 deaths; of fifty cases operated on at the time of injury or subsequently by puncture, incision or partial nephrectomy, there were forty-eight recoveries and two deaths; of forty-four cases in which nephrectomy was done, there were thirty-three recoveries and eleven deaths. A study of the series of cases not operated upon shows that in at least forty-two cases death was due to causes not immediately dependent on the original injury, namely, aneurism of the renal artery, renal calculus, hydronephrosis, etc., all following years after the accident. Eliminating such cases, about 66 per cent. of recoveries ensue in those cases of contusion of the kidney which receive no surgical treatment.

The secondary accidents of renal contusion are extremely frequent, and often serious. The chief ones are infection, peritonitis, pyonephrosis and perinephritic suppuration. The immediate dangers are shock, anuria, and hemorrhage, internal or external. Internal hemorrhage is a grave accident, necessitating prompt surgical interference. It may be intraperitoneal or subperitoneal; the latter variety offers a much better prognosis, since out of thirty-three cases of intraperitoneal hemorrhage, death occurred in twenty-nine. The diagnosis of internal hemorrhage is difficult; collapse is often not marked; pain and vomiting may occur without peritoneal hemorrhage. But some reliance may be placed on these two signs taken in conjunction with the history, viz., the localization of a zone of dullness in the lower part of the abdomen, and the pushing up of the intestines towards the upper part of the belly; these distended with gas give a tympanitic note on percussion; also the absence of swelling in the region of the kidney, provided a hematuria exists, would seem to indicate that the hemorrhage had gone into the abdominal cavity. Primary hematuria is a common symptom of contusion of the kidney, and little importance should be attached to it.

On the other hand, secondary hematuria means much, and is an unfavorable symptom, accounting for a mortality of 78 per cent.

In speaking of the infection which often takes place in these cases, the writer states that occasionally the injured kidney may be infected by bacteria from the neighboring colon, often injured at the same time. This he has proved experimentally by injecting into the auricular vein of rabbits a solution containing the bacillus coli communis, and then producing a contusion of their kidneys. Death followed, and cultures showed the coli communis in large numbers in the parenchyma of the kidney and around the same organ. The author makes the following conclusions:

1. That the treatment of contusion of the kidney is purely symptomatic.
2. That immediate surgical intervention is only indicated when the peritoneum has been ruptured or internal hemorrhage has taken place. That hematuria alone is never an indication for immediate intervention.
3. That secondary surgical interference is indicated for increasing subperitoneal hemorrhage, for anuria, for persistent hematuria.
4. That intervention is positively indicated in secondary hematuria.
5. That laparotomy is the operation of choice in cases with internal hemorrhage. That nephrotomy is better in most cases than nephrectomy, having 96 per cent. of recoveries, against 75 per cent. of the latter, though nephrectomy is necessary in those cases where the injury has been great and the lesion profound.

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THE TYPHOID SPINE. W. J. Taylor, M.D. *Philadelphia Medical Journal*, December 23, 1901.

The subject of typhoid spine has not received the attention which it deserves from surgeons, and even medical internists have treated it meagrely. Keen, in his work on the "Surgical Complications and Sequelae of Typhoid Fever," dismisses it as a condition of functional neurosis; Osler is inclined to believe that it is a condition bordering on neurasthenia; yet Gibney has shown that there are three distinct conditions of the spine arising often after typhoid fever—first, the "typhoid spine," due to a true perispondylitis; second, a painful condition of the spinal muscles, due to some mechanical strain or injury, not in any sense a perispondylitis; and third, a sensitive spine, truly neurotic, and, of course, without the same pathological findings as in a perispondylitis.

The author holds that often a perispondylitis occurs as a definite affection of the tissues—periosteum, ligaments and fasciae—which is distinctly a surgical affection, amenable to surgical treatment.

Often with typhoid fever a periostitis of the tibia or other bones occur, which in time subsides or leaves only a slight thickening of

the tissues, resolution occurring without suppuration and subsequent necrosis of the underlying bone. The writer pertinently asks why should not the same conditions occur in the spine? He gives a case in full which presented the condition of typhoid spine. The chief symptoms, coming on about a week after convalescence, were pain along the spine, somewhat localized in the lumbar region and hips; this became more intense, and he was put to bed; any attempt at moving brought on agonizing pains in the lumbar region. Associated with this was a peculiar rythmic palpitation of the abdominal muscles, occurring whenever the abdomen was exposed to the air. Some hysteria was certainly present, but examination also showed a distinct thickening of the tissues overlying the lumbar spine with slight deformity. Rest, massage, electricity and tonics were tried, and slowly his general health improved, the pain lessened, rigidity was less marked, the thickening about the spine subsided, and at the end of three months he was perfectly well and the spine apparently normal.

The author considers this case as one of true perispondylitis, holding that with thickening, tenderness and deformity there must exist some definite pathological lesion. He concludes that the symptoms given above come on either late in convalescence or after the patient has been up for some time; that the lumbar spine is the site chiefly affected; that deformity is always present. The treatment indicated is absolute rest in bed, fixation of spine by a plaster jacket, and such measures as tend to improve the general health.

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TRENDELENBURG'S OPERATION FOR VARICOSE VEINS OF THE LOWER EXTREMITIES. Ramsay. *Intercolonial Medical Journal of Australasia*, April 20, 1901.

The writer has used Trendelenburg's method in fifty-seven cases, and his results are very encouraging. This operation consists in the ligation and excision of a small part of the vein in the thigh, thus relieving the varices of the tension caused by the weight of the column of blood in the veins. In the series of cases operated upon the varices were complicated by ulceration of the leg in twenty-five cases, eczema in six, and thrombosis in three cases. In those cases with ulceration the varices antedated the ulcers, the latter varying in size, single and multiple, of upward of twenty years' duration, and chiefly in the lower half of the leg.

The wounds after operation all healed well, except where thin skin was left over superficial varices after their removal. Thrombosis was frequent in many cases, resulting in the permanent cure of many of the sacculated varices. In every case relief of the symptoms was always obtained, but in the unsuccessful cases recurrence occurred, leading to the breakdown of healed ulcers, the outbreak of eczema and the reappearance of symptoms. About 75 per cent.

of all the cases were successful; of the remainder, 10 per cent. were undoubtedly improved, and the others greatly relieved for one to two years.

Operation is contraindicated in those cases in which the deep veins are thrombosed, while the superficial ones are compensatorily dilated or else varicosed. This condition is hard to recognize, and its diagnosis should rest on the history of the case, viz., thrombosis after typhoid, etc., thickening and enlargement of the limb, with or without edema, and sometimes severe cramps.

At the best, it is difficult to say when operation is contraindicated, but in doubtful cases a properly-applied bandage and massage should first be tried.

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PRACTICAL RESULTS WITH 1000 CASES OF NITROUS OXIDE AND ETHER NARCOSIS. H. W. Carter, M.D. *Medical Record*, November 9, 1901.

The writer is in favor of the use of nitrous oxide, either alone or preparatory to ether, in cases requiring a general anesthetic.

General anesthesia can be induced with nitrous oxide by the judicious admittance of air. It is the safest anesthetic. The only danger associated with it is asphyxia, due not to the drug, but to the concurrent lack of air. This danger can easily be guarded against by close attention to the respiration and by the admission of air as soon as cyanosis develops to any extent. Children and anemic people are easily affected by nitrous oxide, and its administration to these should be carefully watched, very small quantities of the gas often causing a dangerous degree of asphyxiation.

As a preliminary to ether anesthesia nitrous oxide presents many advantages—rapid and pleasant in its action, safe, and allowing a smaller quantity of ether to be subsequently given. In neurotic patients and children the method is especially valuable, since the pleasant effects of the gas quiets their fears and unconsciousness is quietly produced. Valvular heart disease is no contradiction, provided compensation is good, the heart readily responding to the stimulation of ether.

The writer thinks that the nitrous oxide ether anesthesia is contraindicated in all cases of arterial sclerosis and pulmonary disease. Chloroform is the agent for such cases.

The disadvantages of the method are that it requires a complicated and expensive apparatus, and the anesthetist must have special training and much experience. But it is largely in vogue in England, and is gradually being adopted in this country. If generally adopted, the author thinks that it would lead to the formation of a trained corps of anesthetists, which are without doubt much needed in this country.

PEDIATRICS

Under the Supervision of José L. Hirsh, M.D., Baltimore.

EXPERIMENTAL OBSERVATIONS ON TUBERCULAR INFECTION IN CHILDHOOD. Dieudonné. *Münchener med. Wochenschrift*, No. 37, 1901.

The frequency of tuberculosis in children varies according to age. According to Feer, tuberculosis is very rarely observed in the first months of life. Even from four to six months it is rarely seen, but from then on it rises very quickly in frequency, and reaches its maximum at the end of the first or second year, and then drops considerably during the third year. Similar statistics have been published by other authors. The opportunity for infection varies according to age. In the nursling, when the child is in bed or in the arms of the mother, the chance of infection is small. It increases rapidly, however, as soon as the child crawls about on the floor, whereby its hands become contaminated with the dirt and dust containing tubercular bacilli, which are then conveyed to the nose and mouth of the child. The tubercular bacilli gain a much more ready entrance into the body of the child at this period, since there are numerous excoriations about the nose and mouth associated with dentition, herpes, impetigo, and excema.

Dieudonné has studied the hands of small children which crawl about on the floor, in order to discover the presence of tubercle bacilli. He selected fifteen children, ranging in age from three-quarters to two and one-half years, whose father or mother suffered from tuberculosis. The material obtained from the hands and nose was used for animal experiments. Upon the hands of a child one and one-half years old, whose mother had tuberculosis, virulent bacilli were found. Similar bacilli were found on the hands and in the nasal secretion of a child one and one-quarter years old, whose father was tuberculous. In both cases the houses were dirty, and the children crawled about on the floor upon which the phthisical parents expectorated. Other cases showed similar conditions. The author agrees with Feer that in acquired tuberculosis of children the "floor infection" plays an important rôle.

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THE STUDY OF CONGENITAL FACIAL PARALYSIS. Cabanness. *Gaz. hebdom. de Méd. et de Chir.*, No. 102.

Under the name of "congenital facial paralysis" Cabanness refers to only the intrauterine paralysis, which may originate from lack of development of the muscles or the nervous system, or inflammation of these organs in fetal life. Those cases in which the paralysis fol-

lows instrumental delivery are excluded. In all, there are seventeen authentic observations. Of these, ten were found in males. These cases, when first seen, varied in age from five months to fifty years. The family history showed nothing particular. In one case alcoholism of the mother was noted, in another mental deficiency of the father. In one case it appeared to be a family disease. In most cases the child was normally and easily delivered. In only one case was asphyxia noted. The first marked sign is the distortion of the face, rarely congenital strabismus. The affection remains absolutely stationary. Only in one case did the inferior facial seem to partly regain its function.

Clinically, there are two forms. The diplegia facialis, which includes both sides of the face, is characterized by paralysis of all the facial muscles, with preference for the orbicularis palpebrarum and the frontalis, by almost constant motor-ocular disturbances, and by the frequent existence of other congenital disturbances. The unilateral form involves only one side of the face, and spares the chin muscles. Only rarely is it accompanied by disturbances in the eyes or other congenital deformities. Occasionally, besides the paralysis, there are sensory and vasomotor disturbances. In only one case has there been noted the partial paralysis of the chin muscles.

The diagnosis rests upon the congenital paralysis of the muscles innervated by the facial nerve on one or both sides, and functional disturbances independent of the paralyzed muscles. The absence of atrophy of the skin, hair, glands and bones makes the differential diagnosis from congenital facial hemiatrophy. In general, the congenital paralysis is easy to recognize. However, it is difficult to recognize whether it is of peripheral or central origin. In order to determine this point, further observation is essential, as the question has not been settled by the various authorities.

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ON THE DIAGNOSIS OF TUBERCULOUS PERITONITIS IN CHILDREN,
WITH A REPORT OF FIFTY-FOUR CASES. A. A. Kissjel.
Vrach., May 26, 1901. *New York Medical Journal*.

Kissjel, in conclusion of an article, states that all the cases of so-called idiopathic peritoneal effusion were taken in the author's hospital to be cases of tuberculous peritonitis, and, accordingly, laparotomy was performed in all cases. Cirrhosis of the liver in children is sometimes mistaken for tuberculous peritonitis, for the ascites may be the only symptom. It must be borne in mind that tuberculous peritonitis has been found in cases of cardio-cirrhotic ascites in children. The exudate in tuberculous peritonitis is not infrequently absorbed spontaneously under stimulating treatment, and the children recover. In most cases the onset is insidious, the first with emaciation and pallor, which cannot be accounted for.

The presence of a serous pleuritic exudate facilitates the diagnosis. The most valuable symptom is the thickening of the peritoneum, which can be felt by grasping the abdominal wall in the shape of a fold.

The fluid in tuberculous peritonitis is rich in albumen and of high specific gravity. Often the whole peritoneum is found covered by dense tuberculous masses, although the patient's condition had been fairly satisfactory. The most difficult cases are the rare instances in which there is a tuberculous pericarditis in addition to a serous peritonitis. In rare cases the disease begins with acute symptoms.

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THE GONORRHEAL EXANTHEMS IN THE NEW-BORN. Jens Paulsen. *Münchener med. Wochenschrift*, No. 25, 1901.

Of the gonorrheal diseases of the new-born, ophthalmia is the most frequent and most dangerous. The ophthalmia in certain severe cases gives rise to metastases. Paulsen has described several cases of inflammation of the joints, and in the present article reports seven cases of exanthems, not only as metastases of the ophthalmia, but also as primary infections. The following case is one of the group:

J. W. was taken on the second day after birth with ophthalmia. On the ninth day a swelling of the left knee, and on the twelfth a swelling of the right knee was noticed. The right knee healed spontaneously, but the knee-joint of the left suppurated, so that it was necessary to open the joint on the eighteenth day. A large amount of pus was discharged, in which only gonococci were present. Numerous papules and vesicles were scattered about both legs. The contents of the vesicles gave, on culture, pure growths of gonococci.

In two other cases, after a very mild ophthalmia, papules and vesicles were noted over the entire body. In three other cases vesicles containing gonococci were observed in children in whom no ophthalmia was present. In all of them the eruption was more prevalent about the head and face. Paulsen concludes:

1. That gonorrheal exanthems are more frequently noted in new-born than following the genital gonorrhea of adults.
2. These exanthems are caused by the gonococci.
3. They may arise as metastatic or through primary infection of the skin. They do not appear to influence the health of the child.

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SPEECH AS A FACTOR IN THE DIAGNOSIS AND PROGNOSIS OF BACKWARDNESS IN CHILDREN. G. Hudson Makuen. *Journal American Medical Association*, October 12, 1901.

The subject of this paper is one of more than usual importance: The expression "backwardness in children" has a rather indefinite scientific meaning. According to the common acceptance of the

term, the backward child is one who is below the average intelligence of children of the same age. A more scientific definition would make the term "backward child" mean one who is not living up to his own possibilities or capabilities. In the present paper, Makuen regards backwardness as a disease.

The diagnosis of backwardness is not difficult. All children who do not, cannot or will not keep up with their classes must be regarded as backward, and should have careful attention. The object of Makuen's paper is to consider to what extent a study of the speech of children will aid us in a diagnosis. Freedom of speech is an absolute essential to the normal development of children, and defect of speech, however slight, makes an impress on the child's mentality and prevents him from doing all that he would otherwise be capable of doing. The author cites several cases in point.

A young man, age nineteen years, was regarded as an imbecile. He could not speak, read or write intelligently; his expression was vacant and staring. His speech was wholly unintelligible. His whole mental condition was thought to be due to his lack of power of expression. On examination it was found that the patient had a defective tongue. The genio-hyoglossus muscle was too short, and bound the tongue down to the floor of the mouth. A simple operation was performed to give a free tip to the tongue. A systematic course of training for the purpose of using the tongue followed for about one year. The imbecile youth soon became one of the leading business men of the city.

From a study of a series of similar cases he draws the following conclusions:

1. It is not always possible to determine at a glance the cause of backwardness in children.
2. Backwardness in children is not always due to a central lesion, but may be the result of arrested cerebral development, due to some abnormality of structure in the peripheral organs.
3. A very common cause of backwardness in children may be some abnormality of structure in the peripheral organs of speech.
4. So closely are the speech centers related to the ideational centers of the brain that any impairment of the one generally results in a corresponding impairment of the other.
5. The best method of arriving at even a proximately correct prognosis in cases of backward children is to apply the speech test, or, in other words, to ascertain by careful study and experiment to what extent the faculty of speech may be impressed, and it will be found that in those who are susceptible to training in what may be called the refinements of speech are the ones for whom we may promise the best results, and that possibilities for general development will be proportional to the capacity for speech development.

TUBERCULOUS PERITONITIS IN CHILDHOOD.—REPORT OF A CASE.

A. C. Cotton. *Journal American Medical Association*, December 21, 1901.

Cotton is dubious as to the necessity of surgical interference in tuberculous peritonitis in children, and holds it probable that similar hygienic conditions to the usual post-operative ones might have an equally good effect. Put the affected part at rest as far as is compatible with good nutrition. Give concentrated liquid diet to diminish peristalsis. Keep the patient in the recumbent position to prevent diffusion of peritonitis, and to economize energy. Abundant supply of fresh air and the maintenance of body heat are essential. The stools should be kept liquid, without exciting undue peristalsis. Ascitic fluid should be evacuated as frequently as found necessary, and the abdomen, if large, should be supported by a bandage. The well-known action of creosote, guaiacol and iodine upon tuberculosis, and the fact that these are eliminated by all the secretions, their presence in ascitic fluids having been demonstrated, suggests a promising field for their exhibition. Iodoform, 10 per cent., with lanolin, may be applied over the abdomen daily, and its internal administration is claimed to be beneficial. Cod-liver oil should not be forgotten. Protonuclein has found favor with some, and should be theoretically indicated. In support of his view, he reports a case thus treated, the only surgical operation being aspiration of the abdomen, and asks: "If the apparent cure is real, has the improvement been influenced by therapy, and would a laparotomy have produced any better results?"

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SMALLPOX AND VACCINATION. George Dock. *Journal American Medical Association*, December 21, 1901.

Dock calls attention to the recent prevalence of smallpox, and the important significance of epidemics, even if mild. The chief part of his paper is concerned with the study of glycerinated lymph, and in conclusion submits the following:

1. Glycerinated lymph, properly raised and prepared, offers less danger of septic infection than any other kind of vaccine virus, and, notwithstanding the disadvantage of slow drying, it is to be preferred to dry points as made at present.

2. The peculiar features of the vaccine vesicle, as known since the days of Jenner, are due to specific virus. Any marked variation from them must be looked upon as evidence of imperfect protection.

3. Virus that produces an imperfect lesion should not be used, because, though it may induce immunity for a short time, may even prevent the "taking" of an active lymph inserted soon after it, it is likely to obscure the real condition of the subject and set up an unfounded feeling of security.

4. A knowledge of the natural history of normal vaccinia is very desirable for the physician.

5. The vaccination histories of all cases of smallpox, varioloid and chicken-pox should be ascertained and recorded as fully as possible.

6. Makers of vaccine virus should give clear and explicit statements as to the quality of their products. The mere assertion of freedom from pyogenic germs covers only part of the case. Evidences of specific activity, as from use in the human being, should be given. For the makers the results of variolous inoculations in vaccinated monkeys, as suggested by Copeman, would seem very useful, and almost as essential to the maintenance of a proper standard.

7. A government station for the making and testing of vaccine virus is highly desirable. This need not interfere with private enterprises, but, properly conducted, would be of great value to the latter.

8. Public vaccinators should be trained for their work, and facilities should be given for others to study the methods and clinical features of vaccination.

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PERNICIOUS ANEMIA IN INFANTS, WITH A PRELIMINARY REPORT OF A CASE. T. M. Rotch. *Archives of Pediatrics*, September, 1901.

The anemias of infancy have not been investigated so thoroughly as those of later life. The study is surrounded with considerable difficulties, partly dependent upon the peculiarities and instability of the blood-making organs in infancy. Fischl goes so far as to say that the blood examination in infants is of service only in determining the fact of the existence of a mild or severe anemia, but is of no value in the differentiation of the type of the anemia. Infants may in a low state of anemia have an enlarged spleen, which in many cases may be considered as secondary to some primary disease, such as syphilis, rachitis, and chronic malaria. On the other hand, there may be marked enlargement of the spleen without any demonstrable antecedent cause, and the blood may not show the proportion of white-blood corpuscles characteristic of leucemia. Cases of this class have been designated by von Jaksch as anemia infantum pseudoleucemia.

The article by Rotch deals with the primary pernicious anemias similar to those seen in adults. These cases are of rare occurrence in childhood, and still more rare in infancy. In 2068 cases of infants under two years of age, who were admitted to the Infants' Hospital, Boston, there has not been a single case of true idiopathic pernicious anemia. The youngest case of pernicious anemia on record has been reported by Demme, occurring in a breast-fed infant three months old. The child died. The second case was reported

by Monti in an infant six months old. The present case reported by Rotch at nine months would seem to be the third youngest.

The author discusses the etiology and pathology of the disease. In the former he reviews the various theories which have been suggested. The pathological changes in pernicious anemia of infants show no essential differences from those occurring in adults. The most typical lesions are in the bone-marrow, which is red, and in many respects embryonic in type, containing large numbers of nucleated red-blood corpuscles, especially the larger variety of megaloblasts. The most important lesions, from a clinical point of view, are found in the blood, which corresponds in every way to the similar condition seen in adults. Rotch reports his case in detail. The important points to be emphasized in this particular case are:

1. Age of the child, being a female nine months old.
2. The insidious onset with moderate and paroxysmal attacks of indigestion.
3. The extreme pallor and great loss of strength.
4. The absence of any demonstrable cause for a secondary anemia.
5. The slightly-elevated temperature for months.
6. The absence of glandular or splenic enlargements.
7. The presence of the pronounced typical characteristics of the blood of pernicious anemia.
8. The absence of any considerable degree of leucocytosis.
9. The rapid improvement in the general symptoms and in the character of the blood until the infant in all respects appeared absolutely sound and healthy, which in itself is typical of the remission which often occurs in pernicious anemia.

"In considering the diagnosis in the pernicious anemia of infancy, we are forced to acknowledge that signs which are almost pathognomonic in adults lose some of their significance in infants, owing to what we may assume to be a greater instability of the blood-making function. This function, like many others in the early months of life, appears not to have reached its full development, if we may judge from the ease with which the blood reverts to its embryonic type and again recovers its equilibrium. Thus we know that megaloblasts, normoblasts, macrocytes and poikilocytes may occur in grave anemia which are not to be classed as pernicious; but we are hardly justified in reasoning from this that the occurrence of these elements are of no importance in differentiating the type of anemia. We have already pointed out the extreme rarity of pernicious anemia in infants, and the majority of cases which have been reported do not give us the data which in modern methods of blood diagnosis are considered essential. We have failed to find reports of cases occurring in infants who showed the typical clinical symptoms and blood characteristics of an idiopathic pernicious anemia and absence of a primary cause, which subsequently was proved not to be pernicious anemia. It is impossible for one safely to draw general conclusions in regard to this disease in infancy until a much larger number of cases have been studied."

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD NOVEMBER 18, 1901.

Dr. Boggs exhibited a case of arthritis deformans affecting the spine and the hip-joint. The patient, forty-five years of age, came to the hospital complaining of stiffness of the hips, back and neck. His family history was interesting, in that his grandfather, his father and one paternal uncle have suffered with rheumatism and been disabled with stiff joints. One sister also had rheumatism and tuberculosis, one of the etiological factors mentioned by Marie in this disease. He had never been addicted to the excessive use of alcohol, but contracted lues at the age of twenty-three. His first rheumatic attack occurred when twelve years of age, and from that time on he was unable to take part in outdoor sports because of the effect of cold air. At twenty-four years of age he suffered his first severe joint attack, and this was followed by repeated attacks involving the joints and the abdominal muscles until he was drawn over into a marked flexed position, and by 1896 his neck and back had become rigid, and there was but slight motion at the hips. In 1898 he lost entirely the power to flex the hips, and in the interval between '96 and '98 he noticed an increasing stiffness of the lower maxilla, so that at times he could not open the mouth sufficiently to take food. By means of virerous massage and prying his mouth open by one means or another he has, however, retained some degree of motion of the jaws. He has no motion whatever in the spine now. The hip-joints are ankylosed, and he only manages to get about through the fact that his knee-joints and ankles are perfectly free, yet he is able to continue at his business.

Dr. Osler remarked, in discussion, that this case was one of an interesting group of five or six cases which had been seen at the Hopkins Hospital illustrating a form of spondylitis deformans, and that this case particularly showed that the affection is only a variety, the spinal variety, of arthritis deformans. He called attention to the complete ankylosis of the thorax, which *Dr. Boggs* had neglected to mention, but which is a constant feature in this variety.

Dr. Fletcher exhibited a patient manifesting the advanced deformities in the joints resulting from chronic gout. The man was fifty-four years of age, and was first seen in 1894, when he complained of pains in his feet, ankles and hands. At that time he seemed to be suffering from acute arthritis, with marked deformity of the phalangeal joints, but the nodules were not definite enough to be called tophi, and the first diagnosis was acute articular rheumatism, with a question as to the possibility of gout. Since that time the attacks of arthritis have been repeated and severe, and the deposits about the joints have gradually increased in size. At the second visit (he has been admitted to the hospital eleven times in the past

seven years) chalk stones were found in the ears, and the diagnosis of **gout** was established. At the present time there are enormous nodules over the knuckles of both hands, and occasionally one of these breaks down in a process of suppuration. The only causative factor discovered in this case was that he had been a heavy beer drinker.

In considering the etiology of **gout** Dr. Fletcher said that the four marked factors were heredity, probably in 60 per cent.; alcohol, in a large percentage of cases; overeating with insufficient exercise, and lead poisoning. Of the thirty-two cases of manifest **gout** out of a total of 14,000 medical cases seen in the Hopkins in its first twelve years, practically all have given a history of alcoholism, fermented liquors, beers, ales and wines playing a more prominent part than distilled liquors. All had been in males and all in white patients, and ten of these cases also gave a history of having worked in connection with lead. In sixteen the diagnosis was established by the existence of **tophi**.

Dr. Bloodgood reported two cases of acute pancreatitis, with a consideration of the operative treatment. The first case was observed in consultation with a physician in Milwaukee. The patient had passed through two attacks resembling gallstone colic, with severe collapse. During his convalescence a swelling appeared on deep pressure over the epigastrium, accompanied by pain, and an exploratory operation was performed. There was no fluid in the general peritoneal cavity, but on separating the small intestines they found in the mesenter and about the transverse colon large areas of disseminated fat necrosis and a large swelling about the pancreas. In exploring the pancreas the surgeon's finger passed through an area of necrotic pancreatic tissue into a cavity containing a blood clot, perhaps 2 or 3 cm. in diameter. He removed the clot, drained the cavity, and the patient recovered.

The second case was similar in history, except that it was seen six months instead of a few weeks after the first attack. The patient, living in Portland, Ore., was a stout man, with a history of indigestion for a number of years, with rather typical attacks of gallstone colic, though there was no history of jaundice and no stones passed. His last attack was a very acute one with intense pain, a great deal of nausea and jaundice. He recovered from this attack slowly, the jaundice disappeared, and he was bedridden for four or five weeks, complaining chiefly of pain to the left of and above the umbilicus. The physician could feel resistance and tenderness in this region. Exploratory operation disclosed practically the same condition as seen in the first case, but the patient only lived a few days after the operation.

Dr. Bloodgood considered these cases to have been cases of acute hemorrhagic pancreatitis that had recovered from the acute stage. He stated that in the literature there are now some twenty-four cases reported that have been operated upon, and all have died, except three cases—one of Hahn's in Berlin, one of Halstead's in the Hopkins Hospital and one of Beck's in Chicago. These two cases suggest the question of operative treatment during the acute stage. He believed that if we could make the

diagnosis certain, the chances of the patient would be better by waiting rather than by operating during the very acute stage, because the statistics of published cases seemed to show that there is not much to be hoped for from operation at that time. Most of the cases operated upon, however, have been so treated because of suspected intestinal obstruction. If we make an exploratory operation to determine the diagnosis in the acute stage, he believed it best to do a colecystostomy, and thus at once drain off the bile and prevent further chemical irritation of the pancreas.

Dr. Opie exhibited pathological specimens from a case of hemorrhagic pancreatitis associated with chronic interstitial inflammation of the gland. The patient was a man twenty-eight years of age, without any previous history of digestive disturbance. His illness begun four days before death with an attack of nausea and vomiting shortly after a meal. The following day he had violent hiccoughs, which continued until the time of operation. Innumerable fat necroses were found studding the omentum, and the lesser peritoneal cavity contained a bloody fluid. The pancreas was covered by a coagulum of blood. After the operation the patient vomited almost continuously, at first a dark brown fluid, and later almost pure blood, until his death on the fifth day. The pancreas was obtained at autopsy, and weighed more than twice the normal amount. It was very dense, presented the characteristic appearance of chronic interstitial inflammation, and in addition the typical features of hemorrhagic pancreatitis. No gallstones were found in the bladder or ducts, and the pancreatic duct was not dilated. The chronic inflammation must have been of long duration, though the acute pancreatitis ran a rapid course. The causative factor in this case could only be surmised.

H. O. R.

MEETING HELD DECEMBER 2, 1901.

Dr. Kelley reported a modification of the operation for vesicovaginal fistula, and exhibited some patients recently operated upon. He described the operations generally used heretofore, and then the method which he has adopted. It consists in exposing the fistula, and with a knife cutting boldly down to enlarge the fistula by splitting through the vagina and bladder; then, pulling apart the margins, the bladder is separated on all sides and its cut edges brought together by a system of buried sutures. The raw vaginal surfaces are then closed over this. If necessary, the cavity is flushed out and a drain inserted for five or six days.

Case 2.—A very bad case of tuberculosis of the pelvic organs. In extensive pelvic abscesses of the worst kind you can often relieve the patient by the simple operation of drainage, and that plan has relieved some patients who have been so desperately ill that they could not have stood a prolonged operation. In tuberculous cases, however, it is not to be expected that the wound will heal by simple drainage in this way. The case under consideration came to the hospital March 5, 1899, with a large dense pelvic mass resembling a fibroid tumor. The patient was in an emaciated condition, and it was decided to drain through the vagina and wait. This was done, but some time later rupture occurred through the rectum, and

in March, 1900, a year later, the patient returned with a rectal fistula. Building the patient up with rest and tonic treatment, she was able to stand another operation, which consisted in a bisection of the uterus, ligation of the uterine arteries and amputation of the two bisected portions. In the course of the operation there was extensive injury to the sigmoid and rectum, necessitating the removal of a considerable portion of the bowel. End-to-end anastomosis was made after much difficulty, and the patient made a good recovery; at the present time seems to be perfectly well in every way.

Dr. Homer, in discussion, reported a case very similar to the last one. The patient was a woman thirty-one years old, the mother of ten children. She dated her illness from the birth of the last child, then three years old. She had been operated upon twice—first, for bilateral inflammatory disease in the pelvis, and the second time for a cystic mass in the left inguinal region. During this second operation the sigmoid was injured, and three months later she came to the hospital for treatment of the rectal fistula. The fistulous opening in the vagina was surrounded by granulation tissue, which showed tuberculosis microscopically. At the operation it was necessary to resect about 8 cm. of the sigmoid, but an end-to-end anastomosis was made without mechanical appliances, and the patient got well.

Dr. Follis exhibited an interesting case of stab wound of the abdomen. The patient was admitted to the accident department September 8, with the history that two hours before he had been stabbed in the abdomen during a quarrel, and in the meantime he had been driven eight miles in an open wagon. His friends stated that almost immediately after the injury all his intestines began to come out through the wound, which was across the left rectus muscle. When he entered the hospital he was remarkably cyanosed; his pulse could be felt, but not counted, and all his intestines—the transverse, ascending and descending colons and small intestines—were out on the external abdominal wall, with a horse blanket, which had been loaned by a friend, thrown over them. There was a hole in the stomach about 3 cm. in diameter, but fortunately the stomach was outside the peritoneal cavity, so that its contents were being poured out into the open air. The bowels were irrigated with salt solution, wiped off and returned to the abdominal cavity. His condition was so bad that it was decided not to attempt to suture the stomach wounds, so a clamp was put on the walls of the stomach to retain its contents, and this was left in the wound, which was simply strapped up. The pulse became better almost immediately after the operation, but during the next day he was in a very serious condition, and required transfusion, infusion and stimulants of all kinds. Twenty-four hours later he developed all the symptoms of intestinal obstruction, and, under ether, a kink was found in the small intestine. The obstruction was relieved, the wound packed carefully, and the stomach washed out. Since that time his recovery has been prompt and satisfactory.

H. O. R.

MEETING HELD DECEMBER 16, 1901.

Dr. Finney reported a new method of pyloroplasty. He referred to its use only in cases of benign stricture of the pylorus. The cause of such strictures is usually an ulcer of the stomach, followed by scar tissue and

contraction, a benign tumor, or the corrosive action of caustics that have been swallowed.' Dr. Finney referred to the several operations suggested for the relief of the condition, and described his own modification, which he has practiced now on three cases. Instead of making the opening in the bowel the first thing, he postpones it until the last. Starting with a strong suture in the anterior wall of the stomach near the pylorus, to be used as a retractor, any adhesions which may be present are separated so as to allow of bringing the stomach and duodenum together. Then, determining how large the opening is to be, another suture is placed on either side of the strictured area. This gives three handles with which to manage the parts, and, assistants holding these taut, the parts are raised and held steady while the surgeon, with an ordinary sewing needle, inserts Halstead's sutures up to the middle of the bowel along the posterior walls of the stomach and duodenum, and these are all tied so as to draw the stomach and duodenum together. Another line of sutures corresponding to these is then placed on the anterior margins of these joined organs, and then the knife is used to make a U-shaped incision through the stomach and duodenum, and through the strictured pylorus between these two sets of sutures. After tying the bleeding points a running stitch may be taken over the cut end in order to cover raw surfaces with mucous membrane and prevent raw surfaces opposing each other. The sutures being tied now, the operation is completed.

The advantages of the operation are these: There is practically no limit to the length of the incision. When you have divided the tissues the posterior wall retracts, the anterior wall comes forward, and you have an opening the diameter of which is represented by the length of the cut. The U-shaped incision permits of great dilatation.

Dr. Finney then related the history of the three cases operated upon, the latest of which was done nine months ago, and the results in all were most satisfactory.

Messrs. Hirshberg and Dohme presented a paper on the distribution of mosquitoes in and about Baltimore. It was shown that mosquitoes exist practically everywhere about the city and in many places heretofore supposed to be free. For instance, their larvae were found in numerous direct tributaries of the bay and in barrels containing rain water which was relatively clear. It has been supposed that they would not grow in brackish water or in stagnant water that did not contain a fairly abundant growth of algae. Means were suggested for the limitation of the growth of mosquitoes through the destruction of their breeding-places or through the use of agents to prevent their development in or along the larger streams.

Dr. Thayer, in discussing the paper, endorsed the recommendations presented, and, in addition, referred to a therapeutic measure to be used with advantage in limiting the spread of malaria. He referred to the use of quinine as one of the most important factors, because through the destruction of the disease wherever it appears the mosquitoes would be left without a fresh supply of the organism to convey to other patients. He emphasized the importance of the thorough use of quinine in the treatment of malaria, and particularly called attention to the insoluble coated quinine pills sometimes found, especially in country districts. H. O. R.

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THE UNITED STATES PUBLIC HEALTH SERVICE.

A BILL recently introduced in the Senate of the United States by Mr. Perkins will, if it becomes a law, make a long step in the development of a national public health organization. It is entitled "a bill to increase the efficiency and change the name of the United States Marine Hospital Service." The United States Marine Hospital Service has long been an efficient arm of the federal government, but the scope of its activities has so far outgrown the original plan of its organization that its present title has become almost a misnomer, indicating, as it does, but a small part of its regular work. Yet the steady expansion of the Service has been perfectly natural. It has been found fit and ready for each new duty, and it has already become in fact, and by the logic of necessity, the National Public Health Service.

The bill seeks to increase the efficiency of the Service by two, possibly three, important provisions, of which the first is the creation of an advisory board for the laboratory of hygiene. This board is to consist of nine members—the surgeons-general of the Army and Navy, the chief of the Bureau of Animal Industry, the director of the laboratory, and five other persons to be named by the Secretary of the Treasury. This will not only bring the scientific men now employed in distinct departments of the federal government into close association with the Public Health Service, but will also establish helpful relations with laboratory workers in various parts of the country.

The bill also provides for conferences of the United States Public Health Service with representatives of State and Territorial boards of health whenever, in the opinion of the Secretary of the Treasury, such a conference will promote public health. Since the exercise of this authority is discretionary, it would seem to be intended for emergency only. The language of the bill does not clearly indicate that the United States Public Health Service shall take counsel of the local authorities in any such way as will be likely to have a continuous influence upon the development of either State or national hygiene. This part of the bill might, with advantage, have expressed a more definite purpose.

Section 8 of the bill requires the Surgeon-General to confer with the State boards of health concerning the registration of mortality, morbidity and vital statistics, and to prepare necessary forms for the collection and return of such statistics to the Service, then to be compiled, classified and published as a part of the health reports. This is a very important provision, and should aid materially in extending the work of registration in

the country, and in bringing the methods of registration to such a degree of uniformity as will at least make the results fairly comparable.

WOMEN IN MEDICINE.

THE recent closing of the Woman's Medical Department of Northwestern University, and the alleged utterances of a trustee in explaining this action, have enlivened the perennial interest in the question of woman's place in medicine.

The simple statement that the school has of late been running at a yearly loss of \$25,000 would surely have satisfied all the world, including the seventy young women who must now go elsewhere in search of professional training. But the disheartened trustees said, over and above what was necessary, that "women cannot grasp chemical laboratory work and the intricacies of surgery;" that women are unsuccessful as physicians; that co-education is a failure, and that the separate education of women is a worse failure.

Only a year ago a distinguished professor in a Western medical school said on a notable occasion that women in the laboratory ask too much aid of their teachers. A little later this gentleman suffered an incoercible desire to say that in the laboratory it is the common fault of men to ask too little aid of their teachers. If the trustee of the Northwestern University becomes truly contrite, and if he is as versatile as the Ann Arbor professor, he will accept the first chance to say that while it is impossible to make a good doctor out of a woman, it is even more difficult to impart medical skill to a man.

Fifteen years ago, we are told, the graduating class of this same school, including both men and women, handed to the faculty a memorial expressing their belief that co-education was a failure. One is inclined to attach strong significance to the presence of women in the only senior medical class that was ever known to deal thus frankly with its preceptors.

The possession of an American diploma of as early date as 1885 is pretty good evidence that its possessor was not at that time fit to practice medicine. All who ripened from that ancient vintage, remembering how they were thrust out untimely to prey upon a confiding public, agree fully with the sense of that memorial, and it seems a striking coincidence that a mixed class let out the secret. The circumstance illustrates a distinctly feminine characteristic.

In a couple of centuries we shall have statistics upon which to define woman's place in medicine. Meanwhile, here's hoping that the fair postulants may soon win their way into the ranks of male students, for here only can their fitness be fairly tried.

THE CITY COW STABLES.

AN official of a neighboring city, while visiting Baltimore recently, was asked how many cow stables there are in his city. The gentleman hesitated, repeated the question, and finally inquired what joke his questioner was preparing. When assured that the inquiry was a serious one, he expressed great surprise that a single cow should be stabled within the limits of Baltimore.

There are more than 400 stables in Baltimore, sheltering more than 1300^{*} cows. There is plenty of law providing for inspection of stables, and regulating their construction and management. But the owner must always receive written notice giving him a specified time to amend any fault observed by the inspector, and, provided he complies with the notice, he is subject to no penalty. He can create fresh nuisances, as often as he likes, and need never clean up unless notified to do so. The present law, therefore, provides for a perpetual round of inspections and notices. To keep these stables in a decent condition would require 40,000 inspections a year, costing the city an amount of money equal to about one-fifth of the value of the milk produced.

An ordinance introduced into the Council by Mr. Eisenbrandt proposes to prohibit the keeping of cows on any lot of less area than half an acre, or at a greater distance than half a mile from pasture. These provisions would abolish some 200 cow stables now situated within a mile of the City Hall, and would correct much of the nuisance existing in the more open portions of the city.

Why should the City Council pass the ordinance? On the ground of public decency, perhaps, if any popular demand were apparent on the ground; but there is not. For the sake of those who are injured, perhaps, if the sufferers could make their own plea; but they cannot. The ordinance is favored by the health officials, but the health officials did not initiate the movement, and that influence is easily outweighed by the opposition. The Council might pass the ordinance on its intrinsic merits, but that would be a remarkable procedure. Legislative bodies do not move; they are moved, and this we suspect is right. The City Council probably believes that the city cow stable is an unhealthy nuisance, and would no doubt pass Mr. Eisenbrandt's ordinance if those who know most about the dangers of this particular nuisance, and whose right and duty it is to stand up for the poor and defenseless, would raise their voices in support of the measure. That means you.

THE MEDICAL PRACTICE ACT.

THE bill which the Medical and Chirurgical Faculty has offered in the legislature covers very fully the defects in the existing law on medical practice. It is by no means a compromise measure, but represents precisely the views of the profession as to the rightful status of the physician in the Commonwealth, and lays upon the physician the burden of a strict accountability to the State for the quality of his service.

The active opposition to the bill will come from all those who wish to exercise the trade of doctoring untrammelled by education, aptitude or legal responsibility. The passive opposition will be found, as usual, in that misapprehension of our motives and aim, which is peculiarly galling to medical men. In the proposed bill every sort of opposition is unqualifiedly challenged, and everybody on that side will respond. The engagement will be very brief unless we are prepared to put all our force in the field. The result can at present be forecast to a practical certainty if the campaign is to be made by the Committee on Legislation, supported, as it was in 1900, by the invincible acquiescence of some two thousand doctors.

Medical Items.

A BILL providing for the notification of typhoid fever in the District of Columbia has been submitted to the District commissioners by Dr. Wm. C. Woodward.

DR. ROBERT H. M. DAWBARN of New York has been awarded the Samuel D. Gross prize of \$1000 for his thesis on "The Treatment of Certain Malignant Growths by Excision of the Carotids."

ACCORDING to the last report of the Massachusetts State Sanatorium for Consumptives, the results of treatment were considerably better in 1901 than in any previous year, 67 per cent. of the patients having been returned to as cured or arrested.

THE latest suggestion for the destruction of rats is to catch them with birdlime. A quantity of straw treated with the adhesive stuff is to be spread about the burrows on the ground and baited with malt grains flavored with oil of canary seeds. Next morning the straw is found rolled up into bundles, and inside of each bundle is a rat.

THE degenerate children under public custody in Terre Haute, Ind., are to be treated by hypnotic suggestion. The operator is Professor Henry of Chicago. Mr. Henry thinks that hypnotism will correct the bad hereditary inclinations of these children, and Judge Davis, president of the board of guardians, thinks that hypnotism will not make them any worse.

THE Book and Journal Club of the Medical and Chirurgical Faculty met in the Faculty Hall on Wednesday evening, January 22. Dr. David Hunt of Boston gave an address on "Suggestions Concerning Medical History," and Dr. Eugene F. Cordell exhibited the library of Dr. Upton Scott, the first president of the Medical and Chirurgical Faculty.

THE Howard County Medical Association has introduced a bill at the general assembly providing for the appointment by the county commissioners of six local health officers, one for each election district. These officers are to receive each an annual stipend of \$150, and each of them is to be the vaccine physician for his district. One of the six is to be designated as

the chief or county health officer, and secretary to the local board of health.

THE Northeastern Dispensary is now occupying its handsome new building at 1224-1226 East Monument street. The medical and surgical staff includes Drs. Arthur Wegefarth, A. D. McConachie, J. Whitridge Williams, G. C. E. Vogeler, Sylvan Likes, S. Rosenheim, J. C. Beck, P. E. Lilly, W. M. Pearce, D. Z. Dunott, G. E. Starr, T. M. Guier and C. U. Branim. The dispensary is in all of its departments one of the best appointed in the city.

SIR ERNEST CASSEL has given \$1,000,000 to King Edward of England for charitable use. King Edward has decided to devote the amount to the erection and maintenance of a hospital for consumptives, to be situated near London, and to contain 100 beds, of which eighty-eight are to be for poor patients and twelve for persons who are able to pay. His Majesty offers three prizes of the value of \$2500, \$1000 and \$500 for the best essays on and plans for a sanatorium of that size. Medical men and architects in any part of the world may compete. The competition closes in April.

THE Prince George County Medical Association has offered in the legislature an additional section to the medical practice act, providing for the admission to practice in Maryland of physicians in the District of Columbia who are duly certified to the licensing board of Maryland as having complied with the requirements of the licensing board of the District, and in good professional standing in the District at the time of application for Maryland license. A law already in effect in the District grants similar privileges to physicians residing in Maryland upon similar certification by the Maryland board.

A LAW proposed by the Anti-Saloon League of Berkeley, Cal., contains the following two remarkable propositions for the consideration of Congress:

"Section 2. No person, during the term of his enlistment in the military service of the United States, shall use intoxicating liquors or opium, except upon the prescription of a physician or surgeon.

"Section 3. Libraries, reading-rooms and schools for enlisted men, with *compulsory attendance* thereto, shall be established throughout the army and navy of the United States."

SMALLPOX has continued to spread in the country during January, and McCollin's forecast of a year ago seems likely to be made good by the history of 1902. The State of Pennsylvania is suffering more heavily than any of our neighbors. Some 600 cases were reported during December in that State, exclusive of Philadelphia. In Philadelphia 131 cases were reported in the week ending January 11, the largest number so far reported in any one week; 447 patients were under public care on that date. There are also considerable outbreaks in various parts of New Jersey. Among the cases of smallpox in New Jersey is that of Dr. Adams, who is the mayor of Beverly.

THE Baltimore County Medical Association has prepared and introduced at Annapolis a bill to reorganize the county board of health upon an entirely new basis. It is proposed that the president of the board of county commissioners, with the State's attorney and three medical men to be appointed by the governor of the State from a list to be prepared by the Baltimore County Medical Association, shall constitute the county board of health, who shall elect their own executive officer. The term of office is to be four years, and the executive officer is to receive a salary of \$900 per annum. For the use and purposes of the local board of health the county commissioners are required to levy a sum not less than \$2500 per year.

At a special meeting of the Medical and Chirurgical Faculty on the 23d of January the bill proposed by the State Licensing Board and the Legislative Committee, amending the medical practice laws, was carefully considered. The chief improvements over the bill which was defeated at the session of 1900 relate to the discretion of the board to recognize the certification of physicians by licensing boards of other States and the District of Columbia, to the time of examinations, and to the right of the board to revoke a license upon certain grounds. The new bill, so far as it covers interstate reciprocity, seems to provide sufficient safeguards against the admission into Mary-

land of men who have forfeited their professional standing elsewhere. The bill is undoubtedly a very good one, though very long. Its adventures in the legislature will be worth chronicling.

THE State Board of Health has offered three important bills at the general assembly. The first amends the law concerning local boards of health in such a way as to give local health officers tenure of office so long as they shall efficiently perform the duties of the office, but empowers the State Board of Health to remove a local health officer at any time for cause, charges being made and proven. The bill also fixes a minimum salary for county health officers at the minimum rate of \$150 per annum in counties having a population of 10,000, and an additional \$50 a year for each 5000 inhabitants in excess of 10,000. This bill also provides similar methods of dealing with nuisances. The second bill forbids the slaughter for human food of any pregnant female animal within two weeks before the time of her delivery, or within two weeks after delivery, and provides also a penalty for anyone who slaughters or offers for sale for food any animal known to be unfit for food by reason of sickness or injury. The test of guilty knowledge is to be the inability of the animal to stand up or to walk to the place of slaughter. At present the practice of hauling sick animals to the abattoirs for slaughter and sale as food is said to be not uncommon, and the only penalty at present applicable is the confiscation of the animal, a risk which the owner of an animal mortally sick can well afford to take. The third measure introduced by the State Board of Health is in line with the recommendations of the governor in his message to the legislature, and provides for the appointment of a tuberculosis commission consisting of five persons, of whom three are to be physicians, to investigate the prevalence, causes and cost of tuberculosis in Maryland, and to devise means for the restriction and control of the disease. This bill carries an appropriation of \$6000. The commission is to report in two years, which is the term of its official life.

SUMMARY OF RESULTS OF THE EXAMINATION HELD BY THE BOARD OF MEDICAL EXAMINERS OF MARYLAND, MAY 15, 16, 17, 18, 1901.

Number.....	COLLEGE OF GRADUATION.	Obstetrics...	Surgery.....	Gynaecology...	Anatomy...	Physiology...	Chemistry...	Medical Jurisprudence...	Pathology...	Hygiene.....	Practice.....	Therapeutics...	Materia Medica.....	Total.....	Average.....
1.	University of Maryland.....	92	90	85	76	78	76	82	60	87	80	87	81	974	81 1/2
2.	University of Maryland.....	90	100	100	95	83	56	80	73	70	82	89	89	1013	81 3/4
3.	.....	77	80	85	45	74	60	90	42	40	78	88	84	843	70 1/2
4.	.....	88	.....	.....	.....	32	.....	.....	.....	.....	.....	.....	.....	120	10
5.	University of Maryland.....	100	85	80	80	80	78	75	70	80	85	90	97	970	80 10-12
6.	University of Maryland.....	86	90	90	81	100	94	80	50	75	81	98	95	1022	85 2-12
7.	College of Physicians & Surgeons, Balto.	100	95	90	90	100	75	90	70	95	81	85	87	1058	88 1/2
8.	University of Maryland.....	96	85	80	60	81	75	75	77	70	89	91	83	965	80 5-2
9.	University of Maryland.....	90	90	90	75	85	75	68	70	55	82	78	90	948	79
10.	Maryland Medical College.....	78	80	80	75	75	93	66	47	73	85	83	89	929	77 3-12
11.	University of Maryland.....	94	80	80	70	80	97	88	95	100	84	89	90	1040	86 1/2
12.	University of Maryland.....	88	95	95	57	90	72	70	60	46	86	66	83	901	75 1-12
13.	University of Maryland.....	92	90	85	10	100	100	92	82	90	84	95	93	1103	91 1-12
14.	Baltimore Medical College.....	100	90	85	100	95	96	98	81	85	88	78	87	1083	90 1/2
15.	Baltimore University.....	66	70	75	10	.....	20	40	23	28	67	78	70	547	65 7-12
16.	College of Physicians & Surgeons, Balto.	100	90	90	50	78	51	76	41	51	79	88	87	881	73 5-2
17.	University of Maryland.....	90	90	90	35	80	80	78	54	70	75	93	95	930	79 1/2
18.	University of Maryland.....	82	90	90	70	75	60	70	68	46	64	96	95	906	86 1/2
19.	College of Physicians & Surgeons, Balto.	100	90	90	90	75	84	84	87	88	87	75	83	1033	86 1-12
20.	College of Physicians & Surgeons, Balto.	94	80	80	101	100	94	90	90	91	78	70	90	1057	88 1-12
21.	College of Physicians & Surgeons, Balto.	94	80	85	95	90	70	84	75	60	80	85	87	985	82 1-12
22.	College of Physicians & Surgeons, Balto.	91	100	100	75	75	60	76	71	68	86	79	82	968	83 1/2
23.	College of Physicians & Surgeons, Balto.	84	90	90	75	75	80	64	75	75	85	95	83	921	81
24.	Baltimore Medical College.....	75	75	75	16	25	64	60	30	20	64	84	78	666	55 1/2
25.	Baltimore Medical College.....	88	90	90	75	75	78	75	75	66	85	83	82	977	81 5-12
26.	Baltimore Medical College.....	86	85	85	70	75	66	75	60	75	81	96	92	967	80 1/2
27.	Woman's Medical College, Phila.....	95	85	95	90	100	90	76	95	97	81	89	88	1081	90 1-12
28.	Baltimore University.....	52	80	75	60	70	58	68	21	60	75	73	75	767	63 1-12
29.	Baltimore University.....	34	75	75	50	70	50	40	40	25	68	79	77	703	53 7-12
30.	Baltimore Medical College.....	66	70	75	30	50	60	40	31	33	76	73	60	664	55 1/2
31.	Baltimore Medical College.....	75	70	70	75	75	75	60	40	50	75	89	85	845	71 5-12
32.	Baltimore University.....	92	95	95	70	84	40	60	60	58	66	90	90	900	75
33.	University of Maryland.....	88	85	75	80	85	75	75	65	56	70	75	90	919	76 7-12
34.	University of Maryland.....	82	80	90	75	90	75	75	60	60	70	88	88	931	78
35.	Bellvue Medical College, N. Y.....	88	95	100	80	85	75	73	70	60	87	98	90	1066	88 10-12
36.	University of Pennsylvania.....	88	90	90	70	75	40	54	21	35	57	80	91	711	65 1-12
37.	Baltimore Medical College.....	92	85	75	75	50	78	70	15	31	79	89	85	749	62 5-12
38.	Baltimore Medical College.....	90	90	85	85	75	75	96	75	65	60	80	81	947	78 1-12
39.	Baltimore Medical College.....	94	90	90	80	90	98	90	67	56	81	96	92	1023	85 1/2
40.	College of Physicians & Surgeons, Balto.	90	85	91	100	91	75	75	43	53	83	95	90	974	81 1/2
41.	University of Maryland.....	72	60	60	80	90	90	70	53	50	80	83	88	882	73 1/2
42.	University of Maryland.....	94	85	85	98	101	80	76	75	75	73	89	82	1017	84 1/2
43.	Baltimore Medical College.....	86	80	85	70	80	60	54	21	38	79	81	73	806	53 10-2
44.	College of Physicians & Surgeons, Balto.	94	90	90	84	100	67	88	68	43	85	94	88	946	78 10-12
45.	University of Maryland.....	90	95	95	100	96	78	63	75	85	90	82	1049	87 5-12	
46.	Maryland Medical College.....	90	80	80	75	100	75	60	61	53	74	83	88	919	76 7-12
47.	University of Maryland.....	93	95	90	50	95	64	75	60	61	75	79	87	914	75 1/2
48.	University of Maryland.....	94	75	75	55	90	70	66	48	53	89	88	87	900	75
49.	Maryland Medical College.....	88	75	80	40	80	64	54	70	35	70	75	83	814	67 10-12
50.	University of Pennsylvania.....	100	100	100	100	100	82	80	71	88	91	85	85	1082	90 1/2
51.	Leonard Medical College, Balto.....	90	75	80	95	90	88	68	60	61	80	61	80	902	76 1/2
52.	Maryland Medical College.....	86	80	80	80	80	68	66	63	65	60	88	83	908	7 1/2
53.	Maryland Medical College.....	86	80	75	90	90	78	75	70	66	71	75	88	944	78 1/2
54.	Maryland Medical College.....	33	30	40	50	50	37	10	10	32	56	70	68	479	31 1-12
55.	.....	90	100	100	.....	.....	.....	.....	68	65	82	91	83	679	56 7-12
56.	Baltimore Medical College.....	94	95	90	60	84	70	63	48	60	70	93	95	927	77 1/2
57.	Baltimore University.....	64	81	75	75	85	45	66	41	40	74	85	80	810	67 7-12
58.	University of Pennsylvania.....	94	80	85	100	100	80	94	83	70	94	95	93	1068	89
59.	University of Maryland.....	78	95	90	60	90	60	80	60	71	75	81	90	912	77 1/2
60.	University of Maryland.....	100	90	91	100	100	71	75	73	56	87	90	92	1020	85 1/2
61.	University of Maryland.....	92	90	90	84	90	48	65	60	61	35	65	87	871	72 7-12
62.	Baltimore Medical College.....	51	91	81	70	75	56	50	26	26	56	63	48	691	57 7-12
63.	University of Maryland.....	90	85	80	75	75	68	76	70	33	84	85	82	933	75 1/2
64.	University of Maryland.....	69	80	75	80	60	66	60	40	31	65	83	78	807	67 1/2
65.	Baltimore Medical College.....	51	80	60	50	80	75	70	45	31	57	73	80	753	62 1/2
66.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67.	Baltimore Medical College.....	90	90	90	75	100	76	75	81	60	84	88	90	998	83 1/2
68.	Johns Hopkins Medical Department.....	100	95	100	95	100	90	75	96	100	85	96	97	1120	91 1-12
69.	University of Maryland.....	80	90	85	80	100	65	81	80	63	77	80	82	967	80 7-12
70.	Baltimore Medical College.....	96	80	90	100	100	94	75	71	70	82	81	82	1024	85 1/2
71.	Johns Hopkins Medical Department.....	92	100	100	95	100	70	70	90	75	99	65	83	1083	90 1/2
72.	University of Virginia.....	100	90	90	90	90	96	88	86	88	86	90	89	1083	90 1/2
73.	University of Maryland.....	83	100	100	100	100	75	66	55	45	73	78	87	967	80 7-12
74.	University of Maryland.....	100	90	95	100	100	97	54	78	90	89	85	99	1068	89
75.	University of Maryland.....	100	85	85	80	90	84	84	80	86	95	89	99	1068	89 10-12
76.	University of Maryland.....	92	100	100	85	100	80	66	81	70	86	91	85	1034	86 1/2
77.	University of Maryland.....	82	80	85	90	95	82	75	75	43	77	95	93	1060	89 1-12
78.	University of Maryland.....	92	90	90	95	100	96	70	80	80	88	95	90	1009	84 1-12
79.	University of Maryland.....	66	95	95	100	100	58	75	68	76	77	79	80	863	71 1-12
80.	University of Maryland.....	76	80	75	91	90	40	56	60	61	75	80	80	863	71 1-12
81.	Maryland Medical College.....	90	80	80	80	85	75	75	68	66	88	90	92	968	81 1/2
82.	Maryland Medical College.....	90	80	85	70	75	84	70	63	38	79	95	85	915	76 1/2
83.	.....	71	75	75	50	70	56	62	10	30	63	68	97	727	67 1/2
84.	University of Maryland.....	73	85	80	80	90	64	64	50	48	88	90	90	902	75 1/2
85.	University of Maryland.....	90	95	95	90	100	96	80	66	93	83	86	85	1059	88 1/2
86.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

A general average of 75 being required, it will be seen from the above table that of 86 applicants 23 failed to reach that average.

SUMMARY OF RESULTS OF THE EXAMINATION HELD BY THE BOARD OF MEDICAL EXAMINERS, NOVEMBER 6, 7, 8, 9, 1901.

Number.....	COLLEGE OF GRADUATION.	Anatomy.....	Physiology.....	Surgery.....	Gynecology.....	Obstetrics.....	Practice.....	Medical Therapeutics.....	Medical Jurisprudence.....	Chemistry.....	Pathology.....	Hygiene.....	Total.....	Average.....	
1.	Woman's Medical College, Balto.....	95	100	90	90	71	84	100	90	75	92	60	75	1023	85 1/4
2.	Jefferson Medical College, Phila.....	66	90	95	90	86	77	79	81	80	98	78	81	1004	83 2/3
3.	University of Pennsylvania.....	65	78	85	85	90	80	80	87	80	70	71	66	912	76
4.	University Coll. of Medicine, Richmond.....	84	100	80	80	63	79	82	92	68	92	81	60	961	80 1-12
5.	Maryland Medical College.....	75	60	80	75	75	65	67	79	55	50	43	44	768	64
6.	Maryland Medical College.....	40	50	80	80	86	63	99	84	70	72	75	61	860	71 2/3
7.	Maryland Medical College.....	75	75	60	80	31	70	88	60	50	60	21	16	686	57 1/2
8.	Maryland Medical College.....	80	100	90	85	80	75	90	80	72	76	75	91	994	82 1/2 5-6
9.	University of Maryland.....	60	90	90	85	86	75	94	91	84	80	66	65	964	80 1/2
10.	University of Toronto.....	50	90	100	80	81	75	95	97	70	72	80	98	1003	83 5-6
11.	University Medical College, Richmond.....	50	75	90	90	90	75	77	80	75	62	68	80	912	76
12.	Johns Hopkins Medical Department.....	95	100	95	90	93	84	84	94	94	100	98	93	1131	94 1/4
13.	Baltimore University.....	70	75	80	85	78	70	83	84	72	66	75	62	900	75
14.	Baltimore University.....	60	75	80	80	75	72	78	85	70	40	55	73	843	70 1/4
15.	Woman's Medical College, Balto.....	60	90	90	95	80	71	78	87	64	76	70	83	950	79 1/2
16.	Rush Medical College.....	95	100	95	95	100	90	94	94	92	90	92	95	1132	94 1/4
17.	Maryland Medical College.....	50	90	90	90	57	75	94	90	80	78	81	81	953	79 5-12
18.	Maryland Medical College.....	60	100	95	95	100	68	82	94	78	78	85	96	1031	85 11-12
19.	Johns Hopkins Medical Department.....	60	95	85	90	100	79	67	94	98	98	91	93	1050	87 1/2
20.	Baltimore University.....	100	95	75	85	88	77	93	99	72	75	75	70	1004	83 2/3
21.	Baltimore University.....	100	95	75	85	88	77	93	99	72	75	75	70	1004	83 2/3
22.	Baltimore University.....	100	95	75	85	88	77	93	99	72	75	75	70	1004	83 2/3
23.	University of Virginia.....	100	75	95	95	86	84	93	94	96	98	80	92	1123	93 7-12
24.	Woman's Medical College, Baltimore.....	75	80	85	85	80	72	77	84	72	76	61	65	912	76
25.	University of Maryland.....	84	40	85	85	88	75	95	87	88	95	81	81	1035	86 1/4
26.	Maryland Medical College.....	90	95	85	85	86	84	93	100	76	96	75	80	1045	87 1-12
27.	College of Physicians & Surgeons, Balto.....	40	60	80	80	59	55	98	90	66	61	56	60	806	67 1/2
28.	College of Physicians & Surgeons, Balto.....	75	84	80	80	75	68	90	77	68	75	60	75	907	75 7-12
29.	University of Maryland.....	50	70	95	90	74	76	73	97	74	70	56	75	900	75
30.	University of Virginia.....	75	100	85	80	80	69	70	79	70	72	61	70	941	78 5-12

A general average of 75 being required, it will be seen from the above table that of twenty-eight applicants, five failed to reach that average.

EXAMINATION QUESTIONS,

MAY, 1901.

PRACTICE.

B. W. Goldsborough, M.D., Examiner.

1. Give symptoms, diagnosis and treatment of diabetes mellitus.
2. Give symptoms, diagnosis and treatment of typhoid fever.
3. Give differential diagnosis between variola and varicella.
4. Give causes, symptoms and treatment of acute simple neuritis.
5. Give the differential diagnosis between serofibrinous pleurisy, acute lobar pneumonia, and tubercular consolidation of the lung.
6. Give diagnosis, symptoms and treatment of chorea.

SURGERY.

Franklin Buchanan Smith, M.D., Examiner.

1. Define—(a) sepsis; (b) asepsis; (c) anti-sepsis.
2. Describe the different forms of intestinal obstruction; their symptoms and treatment.
3. Describe several operations for the radical cure of inguinal hernia and state objections, if any, to each.
4. Describe Colles' fracture and its treatment.
5. Describe several operations for prostate-hypertrophy and state the objections, if any, to each.

6. What are the causes of faulty, vicious or delayed union in fractures?

GYNECOLOGY.

1. Define vulvitis. Give—(a) its causes; (b) its treatment.
2. Define uterine myomata. Give—(a) their symptoms and physical signs; (b) their treatment.
3. Give the differential diagnosis of (a) pregnancy; (b) fibroid tumor; (c) ovarian tumor.
4. Describe the operation of perineorrhaphy—(a) for complete; (b) for incomplete laceration.
5. What is meant by hysterectomy? (a) The causes requiring this operation; (b) several modes of performing the same.
6. What varieties of malignant tumors affect the uterus; the signs and symptoms distinguishing each form?

PHYSIOLOGY.

W. W. Wiley, M.D., Examiner.

1. What are the functions of the several coats of the arteries?
2. What system of nerves regulate the calibre of the blood vessels? Where do these nerves have their origin and how do they reach the blood vessels?
3. How is the normal temperature of the body maintained?
4. What two processes are concerned in the production of the secretions?
5. Describe the blood.

6. What important centers are located in the medulla oblongata?

7. Describe the glycogenic function of the liver.

ANATOMY.

1. Describe the floor of the orbital cavity, and state what bones enter into its formation.

2. Describe the atlas and axis.

3. Describe the knee-joint.

4. How is the collateral circulation established after ligation of the external iliac artery?

5. Describe the origin, course and function of the phrenic nerve.

6. Describe the inguinal canal.

PATHOLOGY.

Eugene McE. VanNess, M.D., Examiner.

1. Define necrosis, and briefly describe its more common etiological factors.

2. (a) What is the difference between fatty degeneration and fatty infiltration? (b) Briefly describe the microscopic appearance of each process in sections of heart muscle.

3. Give a brief description of Cohnheim's theory of the origin of malignant growths.

4. Describe a gray or miliary tubercle, gross and microscopic.

5. Give a description of gross and microscopic conditions of the kidneys in scarlatinal or glomerulo-nephritis.

6. Mention the specific cause of the following affections: 1, Malaria; 2, typhoid fever; 3, diphtheria; 4, tetanus; 5, anthracosis of the lungs; 6, malignant pustule (true carbuncle); 7, relapsing fever; 8, epidemic cerebro-spinal meningitis; 9, tinea circinata et tonsurans.

HYGIENE.

1. Give a detailed account of the precautions you would take in a case of scarlet fever for the protection of the household and the community at large.

2. To what do you ascribe the progressive lessening in the epidemic spread of disease.

3. Mention some of the most widely accepted agents used in disinfection; their methods of application, and the special advantages and disadvantages of each.

4. In a purely chemical examination of water, certain findings are generally considered as indicating its unfitness for drinking purposes. What are these findings?

5. What natural forces enter into every scheme for ventilation?

6. Briefly outline your ideas bearing on hygiene of the schoolroom.

MATERIA MEDICA.

Chas. F. Davidson, M.D., Examiner.

1. What is antimonii et potassii tartras? What is the maximum and what the minimum dose?

2. What is copper? Give the preparations.

3. Give the preparations and doses of aconite.

4. How many minims of tr. of opium are equal to one grain of powdered opium? How much paregoric is equal to one grain of powdered opium? What is the equivalent strength of morphia in each?

5. Is hydrarg. mite. chlor. soluble in water? Is hydrarg. bichlor?

6. What is the dose of sulphate of strychnine by the mouth and hypodermically? Of ext. nucis vomicae by the mouth?

7. What is the ordinary name of belladonna? What are the preparations and doses? What is the active principle and dose?

8. To what class of drugs does kino belong? Mention two other drugs of this class.

THERAPEUTICS.

1. What drugs produce ptialism, and what are the antagonists of these drugs?

2. What is the action of aconite on the heart, and how would you treat aconite poisoning?

3. What are diuretics and diaphoretics? Name the principal drugs of each class, and give their doses.

4. What are the danger signals in the administration of chloroform as an anesthetic?

5. What is the physiological action of tartar emetic in large and in small doses?

6. What are the physiological antagonists of opium?

OBSTETRICS.

J. McP. Scott, M.D., Examiner.

1. Name and describe the sutures, fontanelles and bones of the fetal cranium.

2. Briefly describe your management of a normal labor.

3. Describe the various methods of performing podalic and cephalic version.

4. Describe the varieties of placenta-previa and your treatment.

5. Differentiate a shoulder and breech presentation and give your management of both.

6. Give symptomatology and treatment of puerperal phlebitis.

7. Describe ophthalmia neonatorum and give your treatment.

8. Give treatment for irregular uterine contraction and unyielding os uteri.

CHEMISTRY.

Macler Warfield, M.D., Examiner.

1. Define the terms atom and molecule.

2. Describe methods of obtaining chlorine, and give its properties.

3. What is aqua regia?
4. What are acids, bases and salts?
5. Explain combustion and oxidation.
6. Describe mercury and its compounds.

MEDICAL JURISPRUDENCE.

1. How could you determine whether a wound was inflicted before or after death?
2. What are the characteristics of gunshot wounds?
3. How could you tell the approximate age of a dead person by examination of the body?
4. Give definitions of illusions, delusions and hallucinations.
5. What would be the condition of the kidneys in death from acute mercurial poisoning?
6. Give symptoms and treatment of carbolic-acid poisoning.

EXAMINATION QUESTIONS.

NOVEMBER, 1901.

PRACTICE.

B. W. Goldsborough, M.D., Examiner.

1. Give differential diagnosis between measles and scarlet fever, and also name the most common complications and sequelae of scarlet fever.
2. Name symptoms and give diagnosis and treatment of lobar pneumonia.
3. Name symptoms and give diagnosis and treatment of locomotor ataxia.
4. Give symptoms, diagnosis, synonymes and treatment of laryngeal diphtheria.
5. Give symptoms, synonyme and treatment of herpes zoster.
6. Name conditions with which uremia may be confounded, and give differential diagnosis and treatment.

GYNECOLOGY.

Franklin Buchanan Smith, M.D., Examiner.

1. Define salpingitis. Give—(a) its causation; (b) its physical signs and symptomatology; (c) its treatment.
2. What is hysterectomy? Give the indications for this operation.
3. Describe several different modes of treatment for fibroma of the uterus.
4. Describe laceration of the cervix uteri. Give—(a) its causation; (b) its consequences; (c) its treatment and the operation for its relief.
5. Describe bimanual examination.
6. Give differential diagnosis of normal pregnancy and ovarian cyst.

SURGERY.

1. Define (a) asepsis; (b) antisepsis.
2. Give differential diagnosis of nephritic colic and appendicitis.

3. Give diagnosis and treatment of fracture of the clavicle.

4. Describe the operation of ligating the brachial artery.

5. Describe in detail an amputation of the lower third of the leg.

6. Fistula in ano—(a) its causation; (b) its varieties; (c) its treatment.

PHYSIOLOGY.

W. W. Wiley, M.D., Examiner.

1. Describe the different stages of digestion, commencing with prehension.

2. Describe the process whereby the products of digestion find their way into the general circulation.

3. Describe the general circulation of the blood in the adult.

4. What are the causes of increased temperature in disease?

5. State all the supposed functions of the bile.

6. Where is the speech center and motor area located in the cerebrum?

ANATOMY.

1. Describe the internal or cerebral surface of the occipital bone, and also state with what bones it articulates.

2. With what bones does the superior maxillary bone articulate?

3. Describe the radial and ulnar arteries.

4. What ligaments are found at the hip-joint? Give the function of each ligament.

5. Name the chief veins of the leg, commencing at the foot.

6. Name the subdivisions of the colon, and state what anatomical structures are found in the several divisions.

HYGIENE.

Eugene McE. VanNess, M.D., Examiner.

1. Define the term public hygiene and mention some of its achievements.

2. If the only available supply of drinking water of a community is suspected to be the conveyer of such diseases as typhoid fever and Asiatic cholera, what measures on the part of the individual households would eliminate this danger?

3. How does the food requirement of an individual in idleness differ from that of one engaged in an active out-of-door occupation?

4. In a general way, what is the effect of insufficient ventilation upon the individual, and why?

5. What advantages may a tropical or sub-tropical community expect from the drainage and tillage of adjacent low-lying lands and swamps, and why?

6. A case of smallpox appears in a house

hold consisting of mill hands and school children. In the absence of laws or regulations dealing with such an emergency, you are called upon by the authorities to assist in formulating practical regulations to prevent the spread of the disease. Give in detail the measures you would suggest, with reason for each.

PATHOLOGY.

1. Granted the cardinal signs of inflammation are heat, redness, swelling and pain, explain the cause of the swelling.

2. Define hypertrophy. How does this true hypertrophy differ from the false or pseudo-hypertrophy seen in pseudo-hypertrophic muscular paralysis or cirrhosis of the liver?

3. Given a well-defined disease and a suspected specific cause, say a micro-organism, what requirements should this micro-organism fulfill to prove its direct causal relation with given disease (commonly known as Koch's law)?

4. In the following list of diseases will be found some of those whose specific causes fulfill the requirements of Koch's law, others whose specific causes are universally admitted, although they do not fulfill all of these laws, and yet others whose specific causes are entirely unknown, but from whose general characteristics are generally classified as infectious disease. Group these diseases, with their specific causes (where known), under three heads, x, y and z: (1) Diphtheria, (2) scarlet fever, (3) smallpox, (4) tuberculosis, (5) relapsing fever, (6) tetanus, (7) leprosy, (8) typhoid fever, (9) mumps, (10) erysipelas, (11) syphilis, (12) gonorrhea, (13) thrush, (14) acute articular rheumatism, (15) typhus fever, (16) elephantiasis, (17) Asiatic cholera, (18) hydrophobia, (19) malaria, and (20) trichinosis.

5. Describe in detail the microscopic appearances of typical sections from lobar or croupous pneumonia in stage of red hepatization, and lobular or cartarrhal pneumonia in about the corresponding stage. What are the points of differentiation between these two conditions?

6. An individual has had for a number of years a mitral stenosis of such degree as to enforce a quiet life. This individual comes to autopsy as the result of sudden accidental death. Describe in detail the condition in which you would expect to find his heart and other organs, say liver and kidneys. How would the spleen in this case differ from the spleen of typhoid fever, i. e., to hand and naked eye?

MATERIA MEDICA.

Chas. F. Davidson, M.D., Examiner.

1. Explain the terms hydragogue-cholagogue—name the most important drugs of each class, and give their doses.

2. Name the vegetable astringents and give their doses, and to what constituents are their astringent property due?

3. What is Basham's mixture?

4. Give the official and popular name of preparations and doses of arsenic.

5. Give the doses of pulv. opii, tr. opii, sulph. morphiae by the mouth to an adult and to a child ten years old.

6. Name the principal systemic emetics; the principal local emetics. How is each best administered, and explain the difference in their action?

7. Give the preparations and doses of digitalis and its physiological action, particularly on the heart.

8. What are anthelmintics? Name the principal ones and give their doses.

THERAPEUTICS.

1. Give in detail the treatment of opium poisoning.

2. Give the therapeutic uses of nux vomica and treatment of nux vomica poisoning.

3. Explain in detail the administration of chloroform as an anesthetic, and give the danger signals during its administration.

4. How should you prepare a patient to insure a successful result from the administration of an anthelmintic?

5. Give the therapeutic uses of cinchona.

6. Give the therapeutic uses of copper.

OBSTETRICS.

J. McP. Scott, M.D., Examiner.

1. Give the pathology and treatment of puerperal mastitis.

2. Give indications for the employment of the forceps. How should they be used?

3. Give your management of a face presentation?

4. Define version, describe varieties and methods of performance.

5. Give the antiseptic management of a labor.

6. Name some of the anomalies of the expellent forces.

7. State your management with a view to their correction.

8. Describe the normal agencies for controlling hemorrhage.

Book Reviews.

MENTAL DISEASES. By Henry Y. Berkley, Clinical Professor of Psychiatry, the Johns Hopkins University; Chief Visiting Physician to the City Insane Asylum, Baltimore. New York: D. Appleton & Co. 1900.

As Berkley says in the introductory note to his book, "the absence from English medical literature of a comprehensive, practical work on mental diseases—one adapted to the needs of the busy practitioner as well as to those of the student of psychiatry"—induced him to prepare this most-needed work, and all must agree that he has presented the profession and student of medicine with a treatise on mental diseases which is in every way satisfactory.

Anyone familiar with the vast changes that have taken place in the field of psychological research during the last ten years will appreciate how unsatisfactory the older books are; and, strange to say, during the last ten years no truly comprehensive book has appeared in English covering the subject.

With our present delicate staining technique for the study of normal and diseased nerve-cells we are able to demonstrate the finer histological structure of the normal cell and the various pathological changes which it may undergo, so that with the Nissl method we are able to demonstrate changes in the ganglion cells showing the most delicate changes from normal to pathological conditions.

The experimental work with the action of various poisons on the central nervous system of lower animals, and the delicate changes in the so-called Nissl bodies of the ganglion cell, have added so much of value to our present conception of the symptoms on the part of the central nervous system after the acute infectious diseases in man and the action of the poisons of alcohol, etc., on the higher cerebral centers.

Berkley has shown himself especially gifted for supplying us with a book treating of the subject from its present standpoint. He has himself been a diligent laboratory worker, and his work on the action of the various toxins on the nervous system of the lower animals are well known to most neuro-pathologists, and are of special interest. Besides, his extensive observation on anatomical material, derived from a large clinical experience with psychological cases, have given him exceptional opportunities of comparing the clinical with the pathological side of the subject.

The book is composed of 548 pages of text, with about fifty-eight reproductions of photographs and other illustrations illustrating the anatomical and pathological side of the subject. These are especially instructive, and will help to make the subject more interesting and comprehensive to the student. The chapter dealing with the changes in the central nervous system, especially the changes in the cerebral arteries after syphilitic infection, is of special interest and importance. From a literary standpoint the style throughout the book is agreeable.

R.

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THE CARE OF CONSUMPTIVES IN STATE AND PRIVATE SANATORIA IN MASSACHUSETTS.

By Vincent Y. Bowditch, M.D.,

Boston.

Physician to the Massachusetts State Sanatorium at Rutland.

AN ADDRESS BEFORE THE MARYLAND PUBLIC HEALTH ASSOCIATION, THE MEDICAL
AND CHIRURGICAL FACULTY AND THE LAENNIC SOCIETY, AT M'COY HALL,
JANUARY 28, 1902.

PROFESSOR OSLER has well said in his *Practice of Medicine*, "Perhaps the most important advance in the treatment of tuberculosis has been made in the establishment in favorable localities of institutions in which patients are made to live according to strict rules and in the open air. Private sanatoria for the well-to-do classes are urgently needed. Public sanatoria for the poor are an absolute necessity."

This opinion is echoed, I think I can truly say, by the majority of the medical profession of the present day. It is the positive opinion of all who have had personal experience in this form of treatment for consumption.

The extraordinary growth in recent years of the demand for the establishment of sanatoria for tuberculosis is not the sudden outburst of a popular fad or fancy. It is the result of steady, patient, persistent effort on the part of the disciples of Herman Brehmer, who forty years ago established a sanitarium in the mountains of Silesia, and proved to the world that tuberculosis was not the hopeless disease it had once been considered, and that a large percentage of patients could be cured by his methods.

Slowly but surely other similar establishments arose. Finally, in this country his influence was felt. The Adirondack Sanitarium, founded by Trudeau at Saranac Lake, New York, is now known throughout the medical world, and recently other institutions have sprung up in our land, all following the general plan of Brehmer in his belief that fresh air, good food and proper supervision of the patient at a critical time are the chief factors in producing the desired result.

Massachusetts, I feel proud to say, was the first State to inaugurate the idea of State provision for the care of incipient tuberculosis

occurring in people of limited means who were unable to go far from home.

In 1895 a bill was introduced in the Massachusetts legislature for the establishment of a State sanatorium for consumptives, and after presentation of facts by various experts and members of the laity, showing the great need of such an establishment, with very little opposition an appropriation of \$150,000 was made, and a board of trustees appointed. They, with commendable wisdom and foresight, took great pains in obtaining the opinions of physicians throughout the State as to the most favorable locality, and having decided upon the hills of central Massachusetts, proceeded to build in the town of Rutland, at an elevation of about 1100 feet above the level of the sea.

In deciding wisely to have the sanatorium furnished with the best methods of heating, lighting and drainage, the appropriation was found to be insufficient to finish the building as originally planned, but in October, 1898, with accommodations for 175 patients, both male and female, the institution was formally opened by Governor Wolcott. The success of the plan has been so apparent in the last three years that the legislature has since made an additional appropriation of \$127,000 for the purpose of completing the buildings and offering accommodations for 250 patients. The new buildings are now in process of construction, and by the early summer it is hoped to open them to the public.

In a few words let me give you the general scheme of the plan. The sanatorium stands on the southern slope of a hill, protected on the north and west by a close growth of deciduous and evergreen trees. The wards, arranged like the outspread fingers of the hand, radiate toward the south from the convex side of a long corridor, and are made to receive the maximum of sunshine and air. To the north of the corridor lie the heating, lighting and kitchen departments, also the dining-room and new entertainment hall. The new administration building is placed in front. Most of the wards are one story high, and contain from sixteen to thirty-five beds. Two of the new wards have an additional story.

An unlimited supply of excellent water is obtained from an adjoining lake, and the drainage is carried through pipes to filter-beds about a mile to the north of the sanatorium. The buildings are lighted by electricity, and warmed by both the direct and indirect systems.

The methods of treatment are chiefly constant life in the fresh air, the use of judicious exercise, with plenty of good nourishing food. Medicines are used only as adjuncts in the general treatment. The windows are never wholly closed except at the rising hour and at bedtime. In excessively cold or wet weather those on the unexposed side only are left open usually.

It has been my privilege and pleasure to be one of the two attending physicians of the sanatorium since it opened its doors. In quoting the results obtained in the past three years, I speak now

only for my own department, which contains a little less than 100 beds.

It is the aim of the sanatorium to receive only such cases as are susceptible of marked improvement at least. We desire only those in whom the symptoms of the disease are just beginning, but, as a matter of fact, many well-advanced cases have been received, and in these the results have been oftentimes surprising and very gratifying.

For many details I must refer you to the annual reports, but a short quotation from the fifth report, lately published, will give you some idea of what has been done.

You will notice that I use the term "arrested," and not the term "cured." This is in consequence of my experience that it is safe to call no one case "cured" until some time after discharge, when a continuance of favorable symptoms may justify the term. The treacherous nature of the disease has made me thus far unwilling to use the more radical term at first, although the symptoms and appearance of robust health have justified the most favorable prognosis in many cases.

	1898-1899.	1899-1900.	1900-1901.
The percentage of "arrested" cases out of the whole number discharged, regardless of the stage of the disease, was.....	30 97	39 7	42.23
The percentage of all classes of improved cases, including "very much improved" and "slightly improved" cases, was.....	46.10	52.4	53 79
Percentage of "not improved" cases, was.....	21.23	7.9	3.99

During the past year, of the truly incipient cases discharged, in 79 per cent. the disease was "arrested."

It will thus be seen that there has been a steady improvement in the results obtained thus far at the sanatorium. This is doubtless largely due to improved facilities at the sanatorium, and to the fact that we have been able to more carefully select the cases suitable for treatment.

The subsequent histories of the cases received in the institution are of great importance in determining the lasting effect of what has been gained and the efficiency of the lessons taught to the patients during their stay.

It is somewhat early to give the most satisfactory statements on this point at the Rutland Sanatorium, but the answers sent to our printed questions to all past patients have given us already great encouragement.

To quote from my report of the past year, with statistics prepared by my assistant, Dr. Henry B. Dunham, who resides at the sanatorium:

"Of the thirty-five patients of the first year discharged from two to two and one-half years ago as 'arrested' cases, all are believed to be alive and in good condition, with the exception of two who died this year after a residence of nearly two years on the coast. Both of these cases showed good and sufficient reason for their relapse. Of the thirty-three remaining cases, twenty-six are

known to be alive and well and at work." The others had not replied to the circular at the time of writing.

"The seven patients discharged as 'improved,' and in whom the disease subsequently became 'arrested,' are still in the same excellent condition.

"Of the fifty-six cases of the second year, tabulated as 'arrested,' discharged from one to two years ago, all are alive and in good condition, with the exception of four, who have relapsed.

"At least three of the cases classified then as 'improved' have since lost every symptom of disease, and are now considered as 'arrested.'

"It should be said that all of the relapsed cases have returned either to unhygienic surroundings or have ceased to follow the rules laid down for them at the sanatorium."

	Incipient.	Well marked incipient.	Moderately advanced.	Advanced (each having fair sized cavity.)	Totals.	Percent- ages.
Arrested.....	35 (9)	35 (10)	12 (8)	3 (3)	85	42.2
Very much improved..	5	23 (10)	13 (7)	4 (3)	45	22.3
Much improved.....	1 (1)	10 (10)	19 (15)	1	31	15.4
Improved.....	3 (1)	10 (10)	16 (13)	3 (3)	32	15.9
Not improved....	0	2 (2)	3 (3)	3 (3)	8	3.9
Totals	44	80	63	14	201	
Percentages.....	22	40	31	7		

NOTE.—The figures in parentheses denote those having symptoms indicating an active process, i. e., fever, pulse, etc.

In this connection I think it will interest you to know of my experience with sanitarium treatment in the last eleven years at a small institution intended only for women of very limited means, situated in a healthy country town only eighteen miles from Boston.

The Sharon Sanitarium, at Sharon, Mass., was established through the generosity of private individuals eleven years ago as a place where, for a nominal price of board, women of limited means could have an opportunity to recover from tubercular disease.

The sanitarium stands between 300 and 400 feet only above the level of the sea, about ten miles from the coast, and in these respects for some years was unique, the only one resembling it now in that part of the country being Dr. Millet's private sanitarium at East Bridgewater, which is intended for the more well-to-do class of patients.

The results obtained at the small institution at Sharon were such as to encourage the trustees of the Rutland Sanatorium, as stated in one of their early reports, to urge the establishment of the large State institution.

In the eleven years of its existence nearly 200 patients have been treated at the Sharon Sanitarium. At first its capacity was nine patients, but a year ago it was enlarged, and it can now receive twenty-one women.

Although from necessity and choice it has remained comparatively small, it has served as an object-lesson of what can be done to check the course of consumption by comparatively simple

methods near the patients' homes in properly-regulated sanatoria, even in what are considered unsalubrious climates.

In a paper read before the American Climatological Association in New York in May, 1899, I gave the subsequent histories of patients who had left the institution as "arrested cases."

Out of thirty-four "arrested cases" tabulated from 1891 to 1898, six had died, all the others having remained at the time of writing (1899) well, after intervals from one to seven years.

Of the six who died, three had been fairly advanced cases at the time of entrance, in whom the arrest of disease was unexpected. A return to unhygienic surroundings and subsequent illness caused a fatal termination.

One died from another cause, no trace of the former pulmonary disease having been found previous to her death.

The remaining two, against advice, returned to damp, unhealthy homes, where the disease again developed with fatal results.

The results at Sharon since 1899, now nearly three years, have been even more gratifying, and only give additional proof of what can be done in our communities among the hardest class to reach—the respectable poor.

It is, of course, impossible to give you by mere figures the convincing arguments of personal experience in watching individual cases which come under our care.

I wish I could bring before you at this moment several young women, former patients at Sharon, who have been anywhere from one to nine years away from the sanitarium, and who are perfectly well, most of them having adopted different methods of earning their living from that in which the disease developed, some of them married. One especially comes to my mind, a young girl, every member of whose family, five in number, had died of phthisis, and who, in nursing her brother, contracted the disease, and showed all the signs of incipient phthisis herself. In a year's stay at the sanitarium she regained her health. Four years ago she became a wage-earner again, and is now living in Florida, a happy wife. I could cite other similar cases. I will not weary you, however, but merely add that I know this could not have been accomplished by attempting to treat these poor girls in their homes, at least in the great majority of cases. The results, moreover, have been accomplished in our harsh, changeable New England climate, not far from the coast, at a comparatively slight elevation above sea-level, a fact which can encourage you in your endeavor to establish a sanatorium in this State. Can you wonder, then, with this experience behind me, that I hailed with delight and pride this action of my own State, which I believe to be one of the great steps forward in the public endeavor to, at least, lessen the dreadful mortality from consumption in the world?

At other times and places I have emphasized the importance of the educational effects of these sanatoria upon the community, and the truth of this assertion is being constantly proven. The patients are taught thoroughly the simple, but necessary, laws of hygiene. The importance of an abundance of fresh air, of good, nutritious

food, and judicious exercise are constant themes. The patients learn from personal experience the value of these laws, and they preach them to their families and friends. They are made to feel, moreover, that oftentimes their stay at these places is but the stepping-stone to renewed health later, if they will but continue to practice the same methods at home when favorably situated. It has not infrequently happened that patients from Sharon, as well as those from Rutland, who have been discharged as "very much improved," have later in their own homes been restored to health, the disease "arrested" by adopting these simple rules. Letters are frequently received from former patients telling us of their endeavor to act, as we constantly tell them they can do, as missionaries for health in the community in which they live. As an instance of this, let me cite one case lately brought to my attention by my assistant, Dr. Dunham of Rutland:

The captain of a life-saving crew near Plymouth, Mass., became an inmate of the Rutland Sanatorium, with marked disease in one lung. After a stay of several months, he was discharged with the disease arrested, and he went to a town near Boston to drive a milk-cart. His appearance and history excited the curiosity of his neighbors, and he began his crusade against the unhygienic methods which he found there and which he had been taught to avoid. Before long there was scarcely a family in the street in which he lived who had not adopted the principle of sleeping with their windows open and of ventilating their houses instead of sitting in rooms heated by air-tight stoves and with windows closed to exclude any draught.

This is not a unique case, but similar to testimony which we are often receiving. Can we possibly calculate in figures the far-reaching effect of such examples? It is in this way, then, that, apart from the good done to the individual patient, the influence of sanatoria can be of inestimable value in checking the spread of the disease.

In thus strongly advocating the establishment by the State of sanatoria for the treatment of incipient disease, I am not forgetful of the crying need for hospitals for the hopelessly sick. No one can realize more keenly than myself the lamentable lack of care that now exists for the unfortunates who are obliged to die a lingering death in the crowded districts of our cities and towns, and who, from poverty and ignorance of the laws of health, are a constant burden and source of danger to their families and friends. Such cases, to my mind, should be the special care of the municipalities to which they belong, and proper hospitals in their immediate vicinity should be provided. It is the duty of the State, however, to care for those who can, under proper conditions, become useful members of society again, and it is for this idea that I appear before you tonight to give you what help I can in your most laudable endeavor.

One word of caution, however. Having been for several years doing what I could to spread the teachings of Brehmer, Dettweiler, and other pioneers in this work, I find myself, now that the idea has caught the popular fancy, almost in a conservative attitude. We

are not infrequently obliged to correct the extravagant, and even sensational, statements of the press; we have often to curb the undue enthusiasm of those who, having seen the work accomplished already at Rutland and elsewhere, would hurry our legislators into the establishment of similar institutions in other parts of the State. Moderation in these matters, now that the idea has taken root in the community, is to be strongly urged.

The panacea for the cure of consumption has not yet been found; we have only made a grand, great step forward in showing the people how its ravages may be lessened, and, as I believe, in teaching methods for the *prevention* of disease; but let us not go too fast. We have still much to learn, so let us perfect ourselves, and not rush headlong, lest by so doing we run into danger of doing inferior work, and thus bring discredit upon what we know to be of infinite value to the community. Reaction is sure to follow blind enthusiasm. I urge you, therefore, to press this matter upon your legislature, and when you convince them, as I know you can, of the necessity of sanatoria in your own State, be sure that you emphasize the importance of sufficient appropriation to make one institution a model upon which, in due time, others may be built when richer experience shall have taught you the wisest methods.

One important fact must be remembered. In any such institution we are dealing with active people, and not with sick patients in bed. Large quantities of good, nourishing food—meat, vegetables, milk, and eggs—are an absolute necessity to satisfy the often ravenous appetites of people who are living constantly in the open air.

To meet this demand, generous appropriations must be made. Any false economy on this score will defeat absolutely the object of the institution.

We have been subjected very naturally at first to criticism at Rutland upon this score by those who desire that the State money shall be expended economically, but a frank statement by the trustees and physicians has always been sufficient to convince our critics that we were not making an unjustifiable expenditure.

Be careful, too, lest, in your desire to bring the cost *per capita* to its lowest point, you make the number of patients so large that proper supervision becomes more difficult, and hence the results less satisfactory. No one who has had charge of such establishments can doubt that personal supervision of the individual patient is a large factor in the success obtained. If, upon what may prove false motives of economy, we weaken this element of success, we defeat the very object we wish to obtain. The capacity of such institutions should, in my opinion, never exceed 250, and had it been thought possible by the trustees to adhere to the original plan of receiving only 200 patients, it would have been a great source of satisfaction to me. The objection may be overruled by the presence of a sufficient corps of trained medical assistants, but from a careful consideration of the subject I have thought it well to give you my views as a possible help in your future decision.

May your endeavor to establish a State sanatorium in Maryland be at an early date crowned with success!

LAENNEC.

By Wm. Sydney Thayer, M.D.

READ BEFORE THE "LAENNEC" AT THE JOHNS HOPKINS HOSPITAL,
FEBRUARY 7, 1901.

RENE THEOPHILE HYACINTHE LAENNEC was born at Quimper, in Lower Brittany, on the 17th of February, 1781. His father was an advocate, a man of considerable education and scholarly tendencies. A classical student of no mean ability, something of a poet himself, he appears to have shared some of the traditionally orthodox qualities of poets, in that he gave little care or attention to the serious duties of life. In the words of Pariset, "there are men who, like Jean La Fontaine, with their eyes closed to the future, abandon themselves with cheerful thoughtlessness to the dangerous pleasure of remaining children all their lives." And when his wife died of consumption, the father manifested little responsibility for the care of his children, placing them under the protection of one of his brothers, who was the curé of the parish of Etian, at a time when René was but five years of age. Later, at the time of the general repression of the clergy, young Laënnec was placed under the charge of another uncle, Guillaume Francois Laënnec, an eminent practitioner and professor of medicine in the Faculty of Nantes. Under the protection and stimulation offered by his excellent uncle he developed his first fancy for the studies to which he was later to give his life. Here, and later in Paris, he devoted himself with particular assiduity to the study of Latin and Greek. Especially did he cultivate Latin, which he wrote and spoke with unusual fluency. He was familiar with his native Breton tongue, and devoted a good deal of time to the study of Celtic dialects, in which he became deeply interested.

Under his uncle's guidance he began the study of medicine, and soon made his mark as a man of unusual ability. For awhile, in 1799, although he was as yet unqualified to practice, he was attached to the medical department of the army. In 1800, at the age of nineteen, he entered the University of Paris, attaching himself especially to the clinics at the Charité. He became a favorite pupil of Corvoisart, whose name is well known as the expounder of Avenbrugger's great work on percussion.

Laënnec early attained distinction among his colleagues. In 1801, at the Concours, he obtained the first two prizes in surgery and medicine. His assiduity was remarkable, but, in addition to this, he showed a discriminating system in all that he did. In three years as a student he drew up minute histories of nearly 400 cases of disease, observations which were the basis of all his future work. He early began to communicate the results of his studies. His first three publications in 1802 related, respectively, to a case of diseased

heart, histories of inflammation of the peritoneum, and a review of Bell's "Treatise on Venereal Diseases."

In 1804 he took his doctor's degree, his inaugural thesis being entitled "Propositions sur la doctrine d'Hippocrate appliquée à la médecine pratique." Bayle said, *apropos* of this publication, that it proved him to be no less skilled in his knowledge of the Greek language than deeply read in the writings of the father of physic. After graduation, for five years he conducted, as chief editor, the *Journal de médecine*, and for two years lectured upon pathological anatomy. From 1805 to 1821 he was extremely active in the "Société de l'école," a medical society connected with the school. The nature of his work may be suggested by the following titles of publications appearing during this time:

1802-3.—A treatise on peritonitis in the *Journal de Médecine*.

1803-4.—A treatise concerning the description of the capsule of the liver.

1804.—Description of an anatomical process by the aid of which the internal membrane of the ventricles of the brain can be dissected, of which the anatomists admitted the existence by analogy, but without having demonstrated it with the scalpel.

1804.—A treatise on pathological anatomy.

1805.—Monograph on vesicular worms, containing a description of several new species, and of the diseases and organic changes to which the presence of these worms gives rise in the human body.

1806.—A treatise on the melanoses, etc.

1806.—A treatise on angina of the chest; a treatise on a new species of hernia.

In the *Dictionary of the Medical Sciences* Laënnec also wrote on "Pathological Anatomy," "Hydatids," and "Encephaloides." Again, in the *Journal of Medicine* there appeared essays on "Suicide," "Disease of the Heart," "Hydrocephalus," as well as an article on the "Brunonian System of Medicine," and the "Works and Doctrines of Gall."

He was also a member of the Société Anatomique.

During this period Laënnec devoted himself especially to pathological anatomy, bringing together numbers of careful and accurate scientific observations. He was one of the first to appreciate the fact that the clinical comprehensions and appreciation of disease could rest only upon a thorough knowledge of the actual nature of the changes present, and that such knowledge could be gained only by careful and continued study of post-mortem appearances, and by comparing these with accurately-recorded clinical observations. His observations brought him into constant controversy with Broussais and his school, a controversy which was waged on both sides with considerable spirit, and in all these discussions the careful scientific spirit of Laënnec became ever more apparent.

The accuracy with which Laënnec's observations were made is interestingly shown in these words from the preface to his great

work. He says: "I have always tried * * * to omit no detail, and especially those which serve to picture the object described, and to lead the reader, with the greatest possible independence, to weigh of himself the judgment of the author, in order that, if there be a chance, he may discover that which the author himself has not perceived. Indeed, I have not shut out some details which seem disconnected with the case which we are endeavoring to investigate. An extract of an observation made with any particular end in view proves but little, and deserves little confidence.

"All these observations have been collected in the following manner: When a patient enters the hospital it is the duty of a pupil to collect from him those anamnestic facts which he can give concerning his disease, and to follow their course. On examining the patient myself, I dictate the principal symptoms which I observe—those especially which may serve to establish the diagnosis or indications for treatment. And I confirm my conclusion, unless I may have to change it, by subsequent observations. This dictation, which is made in Latin for reasons easily appreciated, is taken down by the pupil in charge of the patient, and at the same time on a separate sheet which I call the 'diagnostic leaf,' to keep which, in order that it may be shown to me and read whenever required at each visit, is the especial duty of another pupil. If a new sign appear, such as might modify the first diagnosis, I have that also added. If a patient die, the account of the autopsy is collected by the pupil in charge of the case. I read this account before all those who have been present at the autopsy, and if any correction is to be made, I make it on the spot, after having consulted with them."

Surely, one could ask today for no more satisfactory method of observation.

While Laënnec is especially known for his remarkable discovery of the value of mediate auscultation and the invention of the stethoscope, there can be little doubt that even had he failed to discover this particular method of research, yet the records of his clinical and pathological studies, and the scientific influence which he exerted on those about him, could not have failed to leave a strong mark upon the history of medicine. His discovery of the stethoscope, and his demonstration of the diagnostic value of the facts which might be brought out by its use, will, however, always stand out as the most striking incident in his career.

One day, while traversing the court of the Louvre, Laënnec is said to have seen some children playing about a long beam. One would place his ear at the end of the beam and listen, while another tapped lightly at the other end, the sound, of course, being well transmitted through the solid body. Several days later the idea came to him which led to the great discovery of his life. The history of the first application of the stethoscope is rather entertaining, and it may be well to quote Laënnec's own description:

"I was consulted in 1816 by a young person who presented the

general symptoms of disease of the heart, with whom the application of the hand and percussion gave little result on account of her *embonpoint*. The age and sex of the patient rendering impossible the method of examination of which I have spoken (direct auscultation), I happened to remember a well-known acoustic phenomenon. If one place the ear at the extremity of a beam, one hears very distinctly the tap of a pin which is made at the other end. It occurred to me that one might perhaps make use of this property of bodies in the case with which I was concerned. Taking a sheet of paper, I made a tightly-rolled cylinder, one end of which I placed upon the precordial region, and putting my ear at the other end, I was as much surprised as satisfied to hear the beats of the heart much more clearly and distinctly than I had ever heard them by the immediate application of the ear. * * *

"It occurred to me, incidentally, that this manner of examination might become a useful method, applicable not only to the study of the beats of the heart, but also to that of all movements which might produce sound in the thoracic cavity; that it might, therefore, be of value in the exploration of respiration, voice sounds, râles, and, perhaps, of the fluctuations of an effusion of fluid in the pleura or pericardium. With this conviction, I began immediately at the Necker Hospital [to the staff of which he had been appointed in 1816] a series of observations, which I have continued ever since. As a result I have discovered new and positive signs which are, for the most part, striking, easy to comprehend, and capable of rendering the diagnosis of almost all diseases of the lungs, pleura, and heart more certain and perhaps more circumstantial than surgical diagnoses established by the aid of a sound or the introduction of a finger."

In May, 1816, he read a memoir upon these methods of observation before the Société de l'école, and on the 14th of that month he gave his first public demonstration of the stethoscope. His first stethoscope was turned in wood in the form of a straight cylinder, one and a-third inches in diameter and twelve inches long, with a bore one-third of an inch in diameter, extending quite through it. The tube was divided into two parts in the middle, so that it might, if necessary, be taken apart. In some instances, however, in listening to the heart sounds, he used a solid wooden instrument. To this instrument he gave the name of stethoscope.

By means of this new method of investigation valuable observations were rapidly accumulated, and in June, 1818, he read an outline of his method and the results obtained from it before the Academy of Sciences. A committee, consisting of Portal, Pelletan, and Percy, was appointed to look into this communication. They rendered a cordial, but not especially enthusiastic, report. The following are the closing words: "Your commissaries, in extending to Dr. Laënnec, who is already very favorably known by learned re-

searches upon divers medical subjects, all the justice which is his due, have further the honor to assure the Academy that this physician, of whose titles to public confidence and esteem it is well aware, has merited its particular appreciation and an especial testimonial of its satisfaction for the new work by which he has done it honor."

In 1819 he published the first edition of his famous work entitled "*De l'auscultation médiate; ou, traité du diagnostic des maladies des poumons et du cœur, fondé principalement sur ce nouveau moyen d'exploration.*" It is scarcely possible in a paper of this sort to enter into an extensive description of this work, which is one of the epoch-making publications of the century, but I cannot resist a quotation from the preface, which expresses, perhaps, as clearly as anyone has expressed it since, a few plain truths concerning the method of approaching the study of medicine. He has spoken of the absolute necessity of a division of his work upon a basis of pathological anatomy. "I have," he says, "moreover, gained much in clearness and brevity by adopting this anatomical method. Pathological anatomy is a much more exact science than symptomatic nosology, and presents more distinct objects for study. It is much easier to describe tubercles and to indicate their symptoms than to define the pulmonary phthisis of clinicians, and to seek to establish diagnoses according to causes. Emphysema of the lung, a description of which will be found in this volume, is an alteration which may be described exactly in a few words, while its signs may be easily exposed in such a manner as to lead to their recognition. One would not easily arrive at a like precision by studying asthma in the manner of Sauvages. Before arriving at anything positive one would have to consecrate a volume to generalities. One may, perhaps, say that the anatomical method has the inconvenience of founding distinctions, the principal characters of which cannot well be verified excepting by the opening of the cadaver. It is scarcely worth while to contradict this objection. One might as well say that surgeons are wrong in distinguishing a fracture of the neck of the femur from a dislocation of the head of this bone, and that one should not distinguish as different conditions pulmonary catarrh and peri-pneumonia.

"The alteration of organs is, without comparison, that which is most fixed, most positive, and least variable in local diseases. It is upon the nature and the extent of these alterations that the danger or the curability of these diseases always depends. It is, therefore, that which should characterize or distinguish them. The disturbances of function which accompany these alterations are, on the contrary, very variable. They may be the same under the influence of totally different causes, and, as a result, one may rarely rely upon them to distinguish conditions very different, indeed, from one another.

One would be wrong, moreover, in thinking that nosological distinctions, established according to the results of pathological re-

search, cannot be recognized excepting in the cadaver. They are, on the other hand, easier to recognize in the living individual, and present, even then, to the mind something much clearer and more positive than any nosological distinction founded upon symptoms. Peritonitis is certainly a disease easy to recognize in the living, and among twenty physicians with a good foundation in pathological anatomy whom one might call about a patient affected by this disease, not one would fail to recognize it, nor would one differ from the others as to its designation. Could one, however, say the same of physicians accustomed to see nothing in their diseases but the symptoms? Would not the necessary result be that one would see an ileus, another an hepatic colic, a third a puerperal fever, etc.? One may say the same of peri-pneumonia, of nephritis, hepatitis, etc., and I hope that, after reading this work, all will agree that the same holds in connection with the greater part of the diseases of the lungs, of the pleura, and of the heart.

"Pathological anatomy is, then, unquestionably the torch which will most surely guide the physician as well to the recognition of disease as to the treatment of those which are susceptible of cure."

The appearance of his work in 1819 created widespread interest. One would be far from appreciating the true significance of Laënnec's work if he assumed that this treatise represented only a demonstration of the possible results to be obtained by a new method of exploration. It is full of accurate clinical observation and reasoning, and contains many valuable anatomical observations. He was the first to describe the anatomical condition of the lungs in emphysema. To his descriptions of bronchiectasis there is little to add today. His views upon the unity of tuberculous processes, which were bitterly assailed at the time, have, in the light of the observations of the last twenty years, been wholly upheld.

Laënnec's success as a pathologist, a clinician, and teacher rapidly increased, but his industry and enthusiasm led him to work far beyond the limits of his physical strength, and in 1820, broken down in health, he was compelled to leave Paris for his home in Brittany. His condition at this time appears to have been one of neurasthenia, associated with marked mental depression. An out-of-door life and the fresh sea air soon brought back health and spirits. His improvement was so great that he was loth to leave his home, and it was only from a sense of duty that, after two years, he returned again to Paris to renew his labors. On his return he supplied the chair of Hallé at the Collège de France, and in 1823 he succeeded his master, Corvisart, as professor of clinical medicine. His success as a teacher and a practitioner increased. He became the physician of the Duchesse de Berri, and of one of the Cardinals. As a teacher his fame grew apace, and among those seeking his clinics were many foreigners.

At the same time he undertook a complete revision of his treatise on auscultation. This, with his many other duties and cares, was no light task, and his health began rapidly to fail. He was, how-

ever, able to finish the revision of his work, and then, in 1826, a physical wreck, advanced in pulmonary tuberculosis, he retired for the last time to his native Brittany.

He was no exception to the common rule, and at the end declined to recognize in himself that which he would have been the first to discover in another. He died upon the 13th of August, 1826, at the age of forty-five.

In 1868, by the subscriptions of French and foreign physicians and of his compatriots of Brittany, there was erected in the Cathedral Square at Quimper a monument which bears this inscription:

“A l’inventeur de l’auscultation,
Laënnec, René Théophile Hyacinthe,
Né a Quimper, le 12 février 1781,
Mort à Plouaré en 1826;
Professeur à la Faculté de Médecine de Paris
et au Collège de France,
Membre de l’Académie de Médecine.
Ce monument a été élevé
par l’Association générale des Médecins de
France, par la Bretagne,
et par les Médecins français et étrangers, 1868.”

Personally, Laënnec must have been an interesting character. Very slight and small, with a delicate complexion, he was apparently a singularly simple and attractive person. Even-tempered, mild and genial in his manners, he was especially courteous and considerate to his students, and particularly to the foreigners who flocked to his clinic. With certain of his own countrymen, especially the supporters of Broussais, Laënnec was, however, not especially popular. Opposed with vigor, even with virulence, by Broussais' school, Laënnec's opposition was so spirited that it could but have caused irritation. He is said to have been in many ways independent, refusing often the calls of the rich, while his charity placed him always at the service of the poor. Although slight in stature, he was yet very fond of outdoor exercises and field sports, and took particular pleasure in referring to his strength and prowess in these pursuits. Remarkably interesting are the closing words of Pariset's eulogy: "Rare man, who combined with so many talents so many excellent qualities, especially justice and tolerance; singular man, of puny stature and delicate complexion, who, disdainning the subtle and deep intelligence with which nature had endowed him, put his pride in his superiority in physical exercises, in social arts, and in certain mechanical industries. But, after all, if we but listen to Cuvier, Cuvier was not a naturalist—he was an administrator; if we listen to Girodet, Girodet was not a sublime painter—he was a poet, and in like manner Laënnec was but a breath of air, and he thought himself a Hercules. He transposed the facts, and the vigor of his mind he placed in his muscles. Innocent failings, imperceptible blots, especially on the brilliancy of those great and exemplary lives, so full of glory because they are useful."

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

THE OCCURRENCE IN THE UNITED STATES OF DISEASES DUE TO RARE PARASITES: (a) ANCHYLOSTOMA DUODENALE; (b) TENIA ECHINOCOCCUS; (c) STRONGYLOIDES INTESTINALIS.

Besides the many new problems in economics and politics which the imperialistic policy of our government has brought in its train and which have required an immense deal of labor and judgment to adjust, many new medical questions have arisen, due to the sending of American troops to our new possessions, and to the much closer commercial relations which have been established.

While, perhaps, the greatest amount of attention has been devoted to the more obvious dangers, especially the possible invasion of bubonic plague, yellow fever, and cholera, there are a number of other diseases of great interest which it seems to us should be brought to the attention of the medical fraternity, so that their recognition may be easier in the future, when, undoubtedly, a larger and larger number of cases will be met with. For that reason we will briefly take up in this review ancylostomiasis or uncinariosis, echinococcus disease, and the intestinal disorders due to the strongyloides intestinalis—all conditions which as yet are but very rarely met with among us, and yet some of which will undoubtedly be met with to a much greater extent in the near future.

(a) ANCHYLOSTOMIASIS (UNCINARIOSIS).

Claytor (*American Journal of the Medical Sciences*, January, 1902, p. 28) reports a case of this disease, and gives a review of previous work done upon the subject.

From this it appears that already a number of isolated cases have been met with in Missouri, New York, Louisiana, District of Columbia, Texas, Virginia, and Maryland, all of which possessed the usual clinical symptoms—intense anemia, dyspnea, weakness, gastro-intestinal disturbances, and in the advanced cases edema of the extremities, and serous effusions into the body cavities. In all cases the characteristic intestinal parasite was found—the uncinaria (or ancylostoma) duodenalis, a worm, nearly cylindrical in shape, .4 to 1 mm. in diameter, and from 6 to 18 mm. long, yellowish or grayish white in color, with translucent edges, the males being slenderer and more transparent than the females because of the less extensively developed sexual organs. The anterior third tapers down, and ends in a truncated cone at the head.

The worm clings to the mucous membrane of the small intestine by means of four clawlike hooks, set in the margin of the mouth capsule, by means of which the parasite sucks the blood from its

host, causing the anemia, although this is probably also partly due to a poison secreted by the parasite.

The ova are perfectly oval in shape, and through its transparent shell the segmented yolk may be seen.

According to Loos, four or five weeks are necessary after infection for the worm to reach full maturity, and from the fact that the eggs do not develop in the host, it follows that any new infection must come from outside.

By preference the worm lives in damp soil, and in Egypt and other countries where the disease is widespread it is among the classes that work under such conditions, as miners, gardeners, workers in brickyards, etc., that the disease is most prevalent, the infection probably being carried to the mouth by the unclean hands during eating.

As to the history of the disease, it seems to date back to times of great antiquity, in Egypt at least, where a disease with markedly similar symptoms is described in a papyrus of the sixteenth century before Christ. Griesinger and Wucherer found the parasite in the disease Egyptian chlorosis, and showed that it was the cause of the pathological picture presented, but the disease came into especial prominence during the building of the St. Gothard tunnel, when the anemia so prevalent among the workmen was shown to be due to this parasite.

As to its distribution, although more common in the tropical and subtropical countries, it is widespread, and has been found between the parallels of 52° N. and 30° S. latitude.

Among other names by which it is known may be mentioned tropical chlorosis, Egyptian chlorosis, geophagia, cachexia aqueuse, cachexia africana, tunnel disease, and miners' disease.

According to Stiles of the Bureau of Animal Industry, parasites of the same genus are to be met with in dogs, seals, sheep, goats, and cattle.

According to Manson, "the essential symptoms are those of a progressive anemia, an anemia which is usually associated with dyspeptic trouble, but which in uncomplicated cases is not associated with wasting. If the progress of the case is unchecked, serous effusions in different organs and fatty degeneration of the heart occur, and death may occur from syncope or from intermittent infections." The bowels may be either loose, regular or constipated, and occasionally the evacuations have a reddish-brown shade, due to the admixture of blood. Stupidity, leading almost to weak-mindedness, is present in severe cases.

The blood shows the following changes: The reds are greatly reduced, sometimes below 1,000,000 per cubic millimeter, while poikilocytes and nucleated red cells are always found. According to Ashford, megoblasts are met with in about one-third of the cases, while an increase of eosinophiles has been noted by a number of observers.

The anemia is usually of the chlorotic type—*i. e.*, the hemoglobin is reduced proportionately more than the red-blood corpuscles.

In discussing the diagnosis of the condition, Claytor, of course, insists that the only way in which an absolute diagnosis can be reached is by the discovery of the characteristic parasites and ova in the stools. Our suspicions are aroused by the chronicity and intensity of the anemia, its insidious onset, the habitat of the patient, and the other symptoms mentioned above, in a case in which other causes of such a symptom-complex can be eliminated.

The treatment is thymol in large doses, repeated at intervals until the stools are free of parasites and ova. Of Landwith's 400 cases, 89.5 per cent. were cured or greatly improved, 2.5 per cent. were unimproved, and 8 per cent. died.

The number of authentic cases hitherto reported in the United States was shown to be twelve, of which number five had their origin in the United States, in three the infection was probably brought from abroad, while in the remaining four an opinion could not be based upon the data given.

Claytor reports his second case, his first one having been reported in 1901. This case was an American, nineteen years of age, who had always lived in Virginia. The history was of a progressive anemia lasting for three years, with edema of face, feet and abdomen, weakness, and dyspnea.

The typical ova were found for two months during which the patient was under observation. Death occurred suddenly from cerebral hemorrhage. The autopsy showed the presence of numerous parasites in the duodenal and jejunal mucosa, while a general subdural hemorrhage over the left cerebrum and a local subdural hemorrhage on the right side were met with.

Yates (*Johns Hopkins Hospital Bulletin*, December, 1901) gives the pathological report upon a fatal case of enteritis, with anemia, caused by *uncinaria duodenalis*, the clinical history of the case having been originally reported by Hall (*Journal of the American Medical Association*, November 30, 1901). The case was one of rapidly progressive anemia, with diarrhea, dyspnea, abdominal pains, and extreme weakness.

The blood-count on the ninth day after admission showed 2,500,000 red-blood corpuscles per cubic centimeter, and 24,000 white-blood corpuscles, of which 25 per cent. were eosinophiles, while eight days later the reds had diminished to 800,000; the whites were 29,600, of which but 3 per cent. were eosinophiles.

The patient died on the eighteenth day after admission. The autopsy, which was most carefully and exhaustively made, showed the parasites in large numbers in the small intestines, more in the ileum and lower jejunum than in the duodenum. There were marked evidences of pathological changes, especially necrosis, in many of the organs, particularly the liver, but the most interesting findings were the pathological changes in the affected portions of the intestines. The intestinal contents were made up of altered

blood, mucus, bits of mucosa, cells which were more or less degenerated, and numerous ova, Charcot-Leyden crystals, and swarms of micro-organisms.

Marked necrosis of the mucosa was met with, while the basal part of the mucosa was infiltrated with eosinophiles, which were also present in great numbers in the submucosa, while they were found in small numbers within the interstitial tissue of the circular muscular coat, but less frequently in the longitudinal coat.

Yates concludes his article with a very interesting consideration of the subject of local and general eosinophilia, and from a study of the literature and of his own case concludes that chemotaxis is the sole factor in the production of such a condition.

(b) ECHINOCOCCUS DISEASE.

Lyon (*American Journal of the Medical Sciences*, January, 1902, p. 124) gives a most carefully-prepared and complete review of echinococcus disease in North America. He has carefully gone over all available literature and hospital records on the subject, and has been able to collect 241 authentic cases of the disease in human beings in North America.

As regards age, 59 per cent. of the cases occurred in persons between twenty and thirty-nine years of age, while 74 per cent. occurred in young and middle-aged adults. No period of life was exempt, however.

As regards sex, 60 per cent. were males, 40 per cent. females, this differing markedly from the figures as shown in almost all other series of cases, and those collected by Neisser, Finsen, and Jonassen, where the women were in marked preponderance.

As to nationality, 91 per cent. were in the foreign-born, 9 per cent. in the native-born, while of the foreign-born about 40 per cent. were Icelandic.

As regards the prevalence of the disease among the Icelandic immigrants into this country, the following facts quoted from Ferguson are of interest:

First, in 1874, and at different times since, the hydatid disease was brought to Manitoba by the influx of Icelandic immigrants, and the disease seems to be entirely limited to this class, of whom forty-five to fifty had been affected from 1874 to 1893.

As to geographical distribution, of 220 cases, fifty-nine occurred in New York, fifty-six in Manitoba, and twenty-four in Pennsylvania.

As to the anatomical location in the 240 cases, lesions in 287 organs were noted, of which 177 (73.7 per cent.) were in the liver—a much higher rate for the liver than in any other series except Finsen's.

Next to the liver the order of frequency of the organs involved by the disease in Lyon's series was as follows: Omentum, peritoneal cavity, peritoneum, and mesentery, 10.8 per cent.; lung, 4.5

per cent.; spleen and kidney, each 3.7 per cent.; bladder, 3.3 per cent., etc.

Discharge of the cysts, cyst membrane or hooklets by the various natural outlets of the body was given as follows: Per rectum, eleven cases (4.5 per cent.); expectorated, seven cases (2.9 per cent.); vomited, four cases (1.6 per cent.), and passed per urethram, two cases (.8 per cent.).

The diagnosis was usually based on the gross appearance of the cysts, the presence of daughter cysts, and the site of the cysts, while in a fair proportion of cases a microscopical demonstration of hook capsules; hooklets, scolices, calcareous corpuscles, etc., was made, and in many cases the absence of albumen and the presence of grape sugar in the cyst fluid shown.

According to Stiles, the disease is increasing among the domesticated animals in the United States, from which it is probably true that the disease in man is also on the increase in this country.

According to the records of the Bureau of Animal Industry, the disease is an extremely rare affection at present in the native flocks and herds of this country, as it is among the native population, while in dogs the adult *Tenia echinococcus* has been discovered and confirmed in but one instance in the United States, although many examinations for such a purpose have been made.

As to prophylaxis, we must remember that echinococcus disease in man and animals is one and the same disease, derived from a common source, namely, the ingestion with food and drink of the eggs of the *Tenia echinococcus*, a tiny tapeworm inhabiting the intestinal tract of dogs and wolves. Thus for human beings or animals to become infected with the larval stage they must receive the eggs of the adult tapeworm of dogs into their stomachs, where the capsule is digested, and the released embryo, penetrating the gastric or intestinal wall, is carried to its destination, usually the liver, where it undergoes its metamorphosis into a hydatid cyst.

Dogs, to become infected, must eat the cysts or cyst contents of animals infected with the disease. The spread of the disease is therefore controlled in two ways—first, by carefully destroying, by burning, the larval cysts in slaughtered animals, and thus preventing the infection of dogs; and second, by guarding ourselves against infection from dogs by remembering that dogs should not be treated as human beings, and should not be allowed to come in too intimate association with human beings.

(c) DIARRHEA DUE TO STRONGYLOIDES INTESTINALIS.

Thayer (*Journal of Experimental Medicine*, 1901, Vol. VI, No. 1) gives a most complete and interesting review of the diarrhea due to the strongyloides intestinalis, discussing its history from its discovery in 1876 by Normand in Cochin-China, and adding two carefully-studied cases of his own to the only other case of this nature heretofore discovered in this country (Strong: *The Johns Hopkins Hospital Reports*, 1901, Vol. X, No. 91).

The article should be read in full by all who are interested in the subject of intestinal parasitology, while the conclusions should be carefully remembered, in the hope that they may serve to clear up in the future some of the cases of diarrhea of doubtful origin so often met with.

The conclusions are as follows:

1. Diarrhea associated with the presence of the strongyloides intestinalis occurs in the United States.
2. The observation in the past three years of three cases at the Johns Hopkins Hospital, cases originating probably in Maryland and Virginia, suggests that the parasite may be more frequent than has hitherto been supposed.
3. As in most cases originating elsewhere in temperate climates, the development of the sexually-differentiated, free-living generation was in these instances apparently unusual, the direct transformation of the rhabditiform embryos into filariform larvae predominating.
4. The discovery of the existence of strongyloides intestinalis should emphasize the possibility that uncinaria (anchylostoma) duodenalis may also occur in this country.
5. More systematic examinations of the feces, both in public clinics and in private practice, are much to be desired.

PATHOLOGY AND BACTERIOLOGY.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

CONGENITAL NARROWNESS OF THE AORTA. J. Burke. *Deutsches Archiv f. klin. Med.*, Bd. LXXI.

The author discusses the relation of narrowing of the aorta to chlorosis, pernicious anemia, and purpura hemorrhagica, as well as its relation to the course of acute and chronic infectious diseases, especially endocarditis. The chief part of the paper deals with disturbances of the heart, due to the aortic condition. For the greater part the heart complications arise about the twenty-sixth year, and terminate fatally with the picture of an insufficiency. Sections show hypertrophy and dilatation of both ventricles (seldom only the left), and arterio-sclerosis of the narrowed aorta. Clinically, these cases are with difficulty differentiated from valvular lesions and myocardial troubles. In females with congenital narrowness of the vessels, secondary insufficiency of the heart is more rare. They are more prone to disorders of the blood itself, such as chlorosis or conditions simulating pernicious anemia.

MALIGNANT ENDOCARDITIS. H. Jackson. *Medical and Surgical Reports of Boston City Hospital*, Vol. XI, p. 67.

Jackson reports a series of fifty-nine cases of malignant endocarditis, in forty-three of which the diagnosis was confirmed by autopsy. The aortic valve was involved in nine cases, the mitral in fifteen, both aortic and mitral in ten cases, the right side of the heart in six cases, and the endocardium of the ventricle in three cases. In five of the nine cases of aortic disease the acute endocarditis was implanted upon a chronic endocarditis. In seven cases the anatomical lesion was correctly diagnosed; in one case a murmur was found only at the apex, and in one case no examination was made. In seven of the ten cases of aortic and mitral disease there was also a chronic endocarditis. The lesion was correctly diagnosed in five cases. In the fifteen cases of mitral disease there was chronic disease in only five; the anatomical lesion was recognized in ten of the cases. In the forty-three cases of acute malignant endocarditis there was pre-existing chronic disease in nineteen cases. In the forty valvular cases the pathological appearance was characterized as follows: Granulation, with ulceration and perforation, nine cases; granulation and ulceration, ten cases; large friable masses, with perforation, one case; vegetation and ulceration, two cases; large vegetation, seven cases; soft gray granulations, nine cases.

From the anatomical report it is observed that in only one case was enlargement of the spleen absent; infarctions were found in thirteen cases, and miliary abscesses in two. In the brain, miliary abscesses were found in four cases, and embolism of the sylvian artery in two cases. Acute purulent meningitis was found in three cases. Infarctions or miliary abscesses were found in the lungs in all of the cases where the lesion was situated in the right side of the heart.

The clinical histories show males, twenty-four; females, nineteen. Thirty-two cases occurred between the twentieth and forty-fifth years.

The clinical symptoms at the onset of the disease may simulate acute rheumatism, typhoid fever, septicemia, malaria, tuberculosis, or meningitis. Of especial diagnostic value is the leucocyte-count. In every case a leucocytosis was found. The lowest count was 9400, and the highest 32,000, the average being from 16,000 to 20,000. Leucocytosis is of great value in eliminating malaria, in which it is not found; typhoid fever, in which it is very rare; acute tuberculosis, in which it is seldom seen.

Bacteriological examination was made in twenty-three cases. In two cases the cultures were sterile; in two cases the identity of the organism was not determined. In the remaining nineteen cases the streptococcus was present eight times, the pneumococcus five, staphylococcus three, colon bacillus one, staphylococci and streptococci one, streptococcus and others one. In five cases organisms were found on microscopic examination where no cultures were successful; two of these showed the gonococci.

A RAPID METHOD OF DETECTING *BACILLUS COLI COMMUNIS* IN WATER. B. H. Stone. *American Medicine*, January 25, 1902.

As soon as the water is received the following steps are taken:

1. *Estimation of Total Number of Bacteria*.—The bottle containing the water is thoroughly shaken, and 1 c. c. of the contents is diluted with 99 c. c. of sterilized water. One c. c. of the diluted specimen is then taken and mixed with a tube of plating agar melted at a temperature of 40° C. This agar is put into a Petri dish and kept at room temperature for ninety-six hours, and the number multiplied by 100 represents the number of bacteria per cubic centimeter of the original water.

2. *Determination of the Presence of the Bacillus Coli Communis*.—(a) A Smith's tube, with a 2 per cent. glucose bouillon, is inoculated with 1 c. c. of the water to be examined, and grown for twenty-four hours at 38° C. If no gas is formed, the absence of the colon bacillus is shown.

(b) If from 25 per cent. to 70 per cent. of gas is formed in the closed arm, a tube containing 10 c. c. of neutral broth, to which has been added 0.3 c. c. Parietti's solution, is inoculated with 0.5 c. c. of the contents of (a), and grown twenty-four hours at 38° C.

(c) A second Smith's tube is inoculated with 0.5 c. c. of the contents of (b), and grown twenty-four hours at 33° C. If there is no gas, we may be sure the gas producer in (a) was not the colon bacillus. If, on the other hand, gas is produced in this tube, we may be reasonably sure that the bacillus coli communis is present.

(d) Further confirmation may be obtained by ascertaining the gas formula from (c).

3. *Estimation of the Number of Bacilli Coli Communis*.—At the same time the plates for total numbers are made, a litmus lactose agar plate of 0.5 c. c. of the original water is made. After solidifying, this plate is inverted, and grown twenty-four hours at 38° C., when the colonies of bacillus coli communis may be identified as red colonies on a blue plate.

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PRIMARY SARCOMA OF THE ESOPHAGUS AND STOMACH. Wm. T. Howard. *Jour. Am. Med. Assoc.*, Feb. 8, 1902.

The fact that there are only eleven cases of primary sarcoma of the esophagus reported in literature shows that this affection is rare. Most of the cases have been regarded as pathological curiosities. To the previously-reported cases Howard adds another, that of a smooth muscle-cell sarcoma of the lower end of the esophagus. The patient, aged fifty-one years, died of exhaustion a few weeks after being admitted to the hospital. The autopsy showed the lower end of the esophagus to be much thickened, and its mucous surface, the seat of irregular ulcers, covered with grayish necrotic material. The cardiac orifice of the stomach is narrowed, but admits the little finger with ease. The stomach was normal, except for the thicken-

ing at the cardiac orifice, and for the presence near the latter of a nodular tumor 7 cm. in its greatest diameter. On section this mass is seen to be beneath the mucosa. Some of the glands near the stomach were enlarged. There were no other metastases. Microscopic examination showed a primary myosarcoma of the esophagus, with metastases in the stomach and neighboring lymph glands.

A critical study of the twelve reported cases of sarcoma of the esophagus shows the largest number of cases to occur between the ages of fifty to fifty-five years, although the youngest reported case is at four years, the oldest at seventy years.

As to the situation of the tumor, the lower end of the esophagus was involved in nine times, the upper in two, not mentioned in one case. The histological character showed one lymph sarcoma, four round-cell sarcoma, two pure-spindle-cell, one alveolar, one mixed-cell, one muscle-cell case. Metastases were noted in five cases. From an analyses of these cases Howard concludes :

1. The disease is more common in males than females.
2. The lower half of the organ is much more apt to be involved.
3. While the tumors usually nearly surround the lumen, in three cases they formed pedunculated or polypoid masses projecting into the lumen.
4. There was perforation, with involvement of the respiratory organs, in four cases.
5. All varieties of sarcoma except angio-sarcoma have been found.
6. The clinical diagnosis of esophageal sarcoma has not been made, and there are no certain and diagnostic points between sarcoma and carcinoma of this organ, the clinical symptoms being necessarily very much the same and dependent upon the same conditions—obstruction and cachexia.
7. Sarcoma runs a more rapid course than carcinoma.

PRIMARY SARCOMA OF THE STOMACH.

Howard collected reports of fifty-seven cases, and adds four of his own observation, making a total of sixty-one cases. In none of the four cases he reports was the diagnosis made ante-mortem.

Case 1. *Clinical diagnosis:* Carcinoma of stomach. *Anatomical diagnosis:* Small round and oval cell sarcoma of the stomach, infiltrating the muscularis, primary in the submucosa. Secondary sarcomatosis of the gastro-hepatic mesenteric glands.

Case 2. *Clinical diagnosis:* Tumor of the spleen. *Anatomical diagnosis:* Primary mixed-cell sarcoma of the stomach. No metastases.

Case 3. No clinical diagnosis mentioned. *Anatomical diagnosis:* Sarcoma of the pylorus.

Case 4. *Clinical diagnosis:* Cirrhosis of the liver. *Anatomical diagnosis:* Primary angio-sarcoma of the lesser curvature of the stomach, with metastases in the liver.

In regards to age, the youngest reported case occurred in a girl three and one-half years old; the oldest at seventy-eight years. The largest proportion occurred below forty years. As regards sex, the sixty-one cases were about equally divided. The growth involved the pyloric end of the stomach in sixteen cases, cardiac end in three, and intermediate points in twenty-seven cases, while it is said to be diffuse in thirteen cases. Metastases occurred in twenty-four cases. The groups were classified as round-cell in sixteen cases, spindle-cell in eight, mixed-cell in four, lympho-sarcoma in fifteen, myo-sarcoma in four, fibro-sarcoma in three, and endothelial in one case.

As to clinical symptoms, Reigel states that there is no clinical difference between sarcoma and carcinoma of the stomach, and Schlesinger found that examination of the stomach contents showed no essential difference.

Analysis of the sixty-one cases by the author brings out several points which may aid in differential diagnosis. The larger number of cases occur below forty, and only one-third of the cases between forty and sixty years—the reverse of carcinoma. The pyloric end was involved in only 26 per cent. of the cases, as against 60 per cent. for carcinoma (Welch). The size of the tumor may be of importance. In eleven cases the tumor was the size of a child's head, being mistaken for tumors of the spleen and ovaries. Metastases are not as frequent as in carcinoma. The liver was invaded in only seven cases—11.5 per cent.—in striking contrast to gastric carcinoma, which invades this organ in 30 per cent. "A tumor of the stomach in an individual under twenty years of age is almost certainly sarcoma." In Osler's 150 cases of carcinoma of stomach only 15.3 per cent. were under this age.

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RELATION OF INSECTS TO THE SPREAD OF DISEASE. Jos. McFarland. *Medicine* (Chicago), January, 1902.

The author sums up the possibilities of dissemination of disease by insects in the following methods:

1. They may carry from place to place disease-producing micro-organisms on their bodies, causing infection directly by lighting upon wounds, and indirectly by lighting upon foodstuffs.
2. They may carry within their body germs of disease which have entered them with food, and may subsequently be deposited elsewhere with the feces. This has been demonstrated in connection with tuberculosis.
3. The suctorial insect, by taking blood containing parasites from the bodies of diseased animals, may carry these upon their proboscides into the next animal bitten, directly and immediately affecting it. There are many cases in which anthrax has been apparently brought about in this way. Plague has been said to be thus disseminated, and tsetse-fly disease is quoted as being thus produced.
4. Insects may take infectious germs into their bodies and trans-

mit them to their offspring, whose bites are infectious, as in case of Texas-cattle fever.

5. Insects may take into their bodies parasitic organisms, which there undergo a further development, the insect acting either as an intermediate or a definite host, and transmitting the parasites to other animals in some changed form in which they are infective. The malarial organism is quoted as belonging to this class. Yellow fever is probably still another, also filariasis, all three disseminated by the different species of mosquito.

6. Insects may become infected by pathologic organisms, and by falling into foodstuff may thus impart infection to man. A fly may become infected with plague and die of the disease.

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CONCERNING HEPATIC SYPHILIS. Simon Flexner. *New York Medical Journal*, January 18, 1902.

From the autopsy records of the Philadelphia Hospital Flexner found eighty-eight cases of hepatic syphilis out of 5088 autopsies. The types of the disease were the interstitial hepatic, gummatous, peri-hepatic, and amyloid. The first made up about half of the cases. Next in frequency came the gummatous form (twenty-three cases); peri-hepatitis was observed sixteen times; amyloid disease seven times. The so-called syphilitic scar was seen in thirty-eight cases. They were located superficially, generally upon the superior and anterior surface of the organ; were commonly multiple, and at times penetrated to some depth. In some instances gummas were found in the same organ. The author maintains that gumma may often completely disappear from the liver either as a result of treatment or spontaneously. A case is reported which indicates that even severe ascites, the effect of pressure exerted by gummas, may gradually lessen and disappear. The prognosis of syphilitic interstitial hepatitis is not so favorable as the gummatous variety, though it is more favorable than the non-syphilitic variety. The existence of amyloid disease is of serious import. In general, the prognosis is more favorable the younger the individual, the less advanced the lesion, and the fewer the complications.

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ANKYLOSTOMIASIS—REPORT OF A CASE. R. L. Hall. *Jour. Am. Med Assoc.*, Nov. 30, 1901.

The patient, aged thirty-eight years, was a sailor, and arrived in Baltimore about the last of September from a port in Mexico. At the time of his entrance into the hospital he was suffering from some obstinate intestinal trouble, and had been suffering from general malaria and debility for six months prior to his arrival in this city. The bowel trouble was associated with pain, and, at times, bloody discharges. Physical examination elicited nothing further than some abdominal tenderness on palpation. There was marked anemia and emaciation. Urine contained no albumen or

sugar. At the time of entrance, blood examination showed 2,500,000 red-blood corpuscles and 24,000 white corpuscles per cubic millimeter. A small per cent. of nucleated reds were found present. About two days prior to death a final blood examination was made, with the following results: Red corpuscles 800,000, white corpuscles 29,600, hemoglobin 11 per cent. Nucleated reds and poikilocytosis were noted. Examination of feces showed, in addition to blood, certain ovoid, granular bodies, the true character of which was not recognized.

At autopsy the intestines were found to contain a hemorrhagic substance, which, on close inspection, revealed numerous small, whitish, wormlike bodies averaging from 7 to 16 millimeters in length. In the neighborhood of the cecum these wormlike bodies were found to exist in great numbers, were noticed to be in a living condition, and many were attached to the mucous membrane. The stomach contained no parasites. The microscopical examination of the contents of the bowel revealed a large number of the previously-mentioned ovoidal bodies, which were recognized to be the eggs of the parasite. The parasite was recognized as the ankylostomum duodenale.

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EXPERIMENTAL PANCREATITIS. Flexner and Pearce. *Univ. of Penn. Bulletin*, Aug., 1901.

From their series of experiments the authors conclude that:

1. Pancreatitis follows upon a variety of insults to the pancreas, and is capable of developing with great rapidity. The introduction of such a foreign body as gastric juice into the pancreas gives rise to degeneration, hemorrhage, and emigration of leukocytes within the brief space of one to two hours.
2. Chronic inflammations (scleroses) of the pancreas may result from the more remote effects of agents which, acting with greater intensity, produce fatal acute inflammations.
3. Perversion of normal secretions, whereby they enter the pancreas, as illustrated by the effects of gastric juice and bile, are efficient causes of pancreatitis.
4. The presence of blood alone in the tissues of the pancreas does not set up an acute inflammation; the tendency is to the rapid production of a chronic proliferative and interacinar and intraacinar pancreatitis.
5. The effects of blood are not produced by blood serum separated from the corpuscular elements.
6. The spleen has no influence upon the development of pancreatitis and the production of fat necrosis. Fat necrosis attend all forms of pancreatitis, and are more numerous and more widespread the more acutely the pancreatic lesions develop. They may appear as early as eight hours following injury to the pancreas.
7. Glycosuria appears quickly after injury to the pancreas; it may persist for several days, and then disappear, although the pancreas has suffered permanent partial injury.

THE MUCOUS MEMBRANE OF THE GASTRO-INTESTINAL TRACT AS
A PORTAL OF ENTRANCE OF PYOGENIC INFECTION. M. Bail.
Langenbeck's Archives, Vol. LXII, p. 369.

In order to determine whether the uninjured gastro-intestinal tract permits the invasion of micro-organisms, Bail introduced streptococci into the stomach of animals through a stomach tube, thereby avoiding infection of the pharynx. Of forty animals so treated, ten withstood the infection, thirteen died of intestinal catarrh, ten of other diseases. Seven received a general infection, and from the peritoneal fluid, liver, and spleen the streptococci were isolated. Cultures of the same were also obtained from the small intestine, never from the stomach, very seldom from the large intestine. In five out of the seven animals Bail could satisfy himself by microscopic examination that various parts of the small intestine were the portal of entrance of the infection, for while the tonsils, stomach and large intestine were free, the streptococci were abundant between and under the epithelium, in the capillaries and lymph-vessels of the submucosa of the small intestine. For the success of the experiment the use of highly virulent material is essential, but small doses are sufficient.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

Assisted by Joseph Hume, M.D.

SEVENTEEN CASES OPERATED ON FOR SO-CALLED "INTERNAL DERANGEMENT" OF THE KNEE-JOINT. Arthur E. Barker. *The Lancet*, January 4, 1902.

This peculiar dislocation, first reported by Bassius in 1731, afterwards studied and described by Hey of Leeds in 1805, and called by him internal derangement of the knee-joint, is now known as dislocation of the semilunar cartilage, and the writer gives an interesting account of seventeen cases, with a lengthy discussion regarding the etiology, pathology, and treatment. A study of these cases shows that the internal cartilage is by a large majority the one usually affected, and that there are several varieties of displacement, both as regards position and degree. In all the cases the semilunar cartilage was split in the direction of its fibers; in none was the cartilage torn across at any point between its ends. (It is well to recall that the semilunar cartilages are crescentic in form, attached to the margins of the tibia, and serve to deepen its surface for articulation with the femur.) The varieties of rents in the cartilage are described as, 1. "Peripheral," where the meniscus is attached to the capsule and

periosteum; 2. "Central splitting," where the tear divides the cartilage into two crescents, the outer one retaining its original attachment; 3. "Partial anterior rent," *i. e.*, anterior to the internal lateral ligament, and 4. "Complete internal dislocations," the whole meniscus having slipped inwards over the internal condyle of the femur and being found curled up against the crucial ligaments. Another variety of derangement seen was a small tag of fibrous tissue, polypoid in form, which, growing from the internal cartilage, was sometimes caught between the bones, giving rise to the usual troubles.

These dislocations seem to depend somewhat on a preceding looseness or slackness of the capsule of the joint and of the semilunar cartilages. During flexion the semilunar cartilage moves, more or less as a whole, backward, and during extension moves forward, in complete extension being pushed forward against the capsule. Therefore it is easy to see how, during extension, the upper edge may be caught between the femur and tibia and a rent ensue. Eversion of the tibia would favor this, as would any roughening or thickening of the cartilage, as in rheumatism.

As regards operative treatment, the writer advises the opening of the joint under perfect asepsis, laying stress on the fact that only instruments should touch the wound, and not the gloved hands, and then either removing the meniscus or stitching it into place. There are three conditions in which he advocates the removal of the cartilage in preference to suturing the two points. These are partial peripheral posterior rents, "central splitting," where the remaining crescent fulfills the functions of the cartilage, and those cases where the rent, though peripheral, is behind the internal lateral ligament. Here suturing is almost impossible without dividing the internal lateral ligament, and this is inadmissible, so it is better to remove the meniscus. The incision used is one commencing over the inner border of the ligamentum patellae, about half an inch above the articular border of the tibia, and carried with a curve outward and downward to the anterior edge of the internal lateral ligament. The lower edge of the flap should lie about half an inch below the articular border of the tibia. The cut should divide the periosteum, and the flap is raised until the cartilage appears under the attachment of the meniscus, which if at all attached will rise with the flap until its under surface is seen. The rent is now sutured, the wound closed without drainage, and dressings applied. The writer advises that the wound be kept open as short a time as possible, that antiseptics be avoided, that handling of the wound be abstained from, and advocates using ice bags over the dressings. He has had no recurrences.

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VOLKMANN'S CONTRACTURE. Leonard S. Dudgeon. *The Lancet*, January 11, 1902.

This characteristic deformity, first described in 1875 by Volkmann, has never received the attention which it deserves, and ignor-

ance of its etiology and pathology is the cause of many a useless limb. It may be defined as a contracture of the fingers, and sometimes of the wrist, which comes on rapidly, with loss of power, which is not absolute, in the forearm muscles, following a severe injury, usually in the region of the elbow-joint, and generally in young children.

The deformity has been attributed to splint-pressure, pressure-sores, a combination of pressure, fixation and ischemia, and though as separate factors these conditions occur in many cases, yet in many they are lacking.

Generally speaking, Volkmann's contracture is a result of prolonged fixation of forearm fractures by any form of apparatus that intercepts the free circulation of the blood through the muscles and nerves of the part.

After such an injury and condition the symptoms come on rapidly, in half a day or less in severe cases. The chief point in the history is the onset of paralysis with contracture. This is characteristic, and makes a distinction between these and purely nervous cases, since in the latter contracture is not simultaneous, but follows slowly, weeks or months after the paralysis. The fingers are often discolored, and usually swollen. Pain is seldom complained of, though after the removal of the splints the forearm is exquisitely tender, and the skin over the middle or upper flexor surface of the forearm usually sloughs. The deformity is so characteristic that it is best described at length. The wrist is extended, and with it the metacarpo-phalangeal joints. The interphalangeal joints of the fingers and the terminal point of the thumb are, however, strongly flexed, so that the tips of the fingers touch the lower part of the palm, and no reasonable amount of force seems capable of straightening them; but as soon as the wrist-joint is flexed to a right angle, then the interphalangeal joints can be easily extended. In very bad cases the wrist becomes strongly flexed, and is incapable of extension. The hand is pronated, and the forearm semiflexed. The flexor muscles of the forearm seem hard, firm, and wasted. On cutting down on them they appear firm, dry, pale, and the seat of fibrous changes. The hands are frequently cold and blue, with the skin smooth, and there is some shortening of the bones in well-marked cases. The *raison d'être*, as Dr. Turney says in explanation, is that the growth of the bones proceed only *pari passu* with the amount of support it has to give to its attached muscles. It is an interesting fact that in Volkmann's contracture, as in pure ischemic myositis, the muscles and nerves retain their normal electrical reactions, but in some cases one meets with a partial or complete reaction of degeneration, and it would appear, therefore, that in these cases there is ischemic myositis plus peripheral nerve palsy.

A differential diagnosis must sometimes be made from one of the following disorders: 1. Ulnar, median, or musculo-spiral paraly-

sis; 2. The contraction after acute anterior poliomyelitis; 3. Little's disease, and 4. Functional disease.

The prognosis is gloomy, indeed, according to Volkmann, who says that where the hands and fingers are involved there is practically no hope for restoration of function. Some ten years later Mr. Anderson called attention to the fact that the lesion, *i. e.*, ischemic myositis, was seldom permanent, and that function could usually be restored by active and passive movements, combined with massage and the galvanic current. The writer reports four cases of his own and thirteen from the literature. In two of his cases he obtained a restoration to function by the use of massage alone. Be it noted that in these cases the electrical reaction was normal. The massage should be given twice daily for about ten minutes, provided there is no pain, and passive movements of the fingers should be advocated. Galvanism apparently does not help.

The surgical treatment is varied. Mr. Davis-Colley has cut through the flexor muscles, later through their tendons, and thus relieved the deformity, but not restored the function. Mr. Johnson has removed a piece of bone from the middle of the shafts of the ulna and radius. This corrected the deformity, but the child had to use a leather splint, as fibrous union resulted. Tendon-lengthening has been practiced by many. The after-treatment consists in the use of a splint for about a fortnight, then gradual massage, the galvanic current, and later active and passive movements of the fingers, hand, and forearm.

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THE CAUSES AND SIGNIFICANCE OF PHANTOM TUMORS. Sir W. H. Bennett. *The Lancet*, January 4, 1902.

Phantom tumors are not infrequently met with, and a consideration of their causes and characteristics is quite essential to the understanding of their diagnosis and treatment.

Tumors which, though demonstrable by the eye and touch, yet come and go without obvious reason or method, are termed "phantom." Their characteristics are uniform, seldom painful, though sometimes they cause great pain, smooth, hard, resistant, and of a shape conforming to the muscle or muscles that form them. These tumors are the result of muscular contraction, and usually signify the existence of some morbid condition nearby or remote. Often they disappear during sleep, but always during deep anesthesia. Their causes are:

1. Irritation (*a*) either of skin or other superficial parts over the muscle causing the tumor or over the nerves which supply the muscles; (*b*) The existence of underlying disease or abnormality.
2. Occupation, where a particular muscle or group of muscles is used continuously for a long period of time.
3. Imitation, where neurotic patients have a tendency to imitate the diseases of those around them.

The writer gives many interesting cases illustrative of these causes—imitation, occupation, and irritation. Tumors due to imitation are very rare, and their diagnosis is quite difficult. Apparently they are limited to the abdominal parietes, the writer being unable to find records of any elsewhere. A case is related in which a carpenter was operated on for a large dermoid cyst in the hypogastric region, extending almost to the umbilicus, and resembling a distended bladder. Recovery followed, and later the patient brought his son to the hospital for a tumor of the lower abdomen. Examination showed a marked prominence in the hypogastric area, and at first it was thought to be an hereditary dermoid cyst, but percussion and palpation revealed no tumor, nor did changes in position have any influence on the prominence. An anesthetic was given, and the tumor completely disappeared. Inquiry revealed that the boy was in the habit of joking about his father's tumor, and would often strut about, assuming his father's attitude, with protruded abdomen.

Several valuable points are mentioned as regards diagnosis. Abdominal phantom tumors are always resonant. Again, an abdominal tumor may be partly real, partly phantom. While giving an anesthetic to determine the character of a tumor, it is necessary to place the hand on the tumor from the beginning of anesthesia. If phantom, the tumor will increase a little in size and hardness in the first stages of anesthesia. As complete anesthesia supervenes a quivering or vibratory movement will be felt in the tumor, which gradually disappears. This gradual disappearance is pathognomonic of phantom tumors.

The treatment of those tumors due to irritation is to remove the cause. In occupation tumors it is practically a necessity that the occupation be changed, and even electricity and massage may have to be used for some tumors. Imitative tumors do not mean very much, and the removal of the patient from the causative influences will usually cause the disappearance of the tumors. If the condition is serious, galvanism often suffices to remove the illusion.

Society Reports.

JOINT MEETING OF THE MARYLAND PUBLIC HEALTH ASSOCIATION, THE MEDICAL AND CHIRURGICAL FACULTY, AND THE LAENNEC SOCIETY, FOR THE PURPOSE OF DISCUSSING TUBERCULOSIS.

HELD AT M'COY HALL, JOHNS HOPKINS UNIVERSITY, TUESDAY EVENING,
JANUARY 27, 1902.

THE meeting was called to order at 8.15 o'clock by Mr. Henry Brauns, president of the Maryland Public Health Association.

Mr. Brauns: Ladies and Gentlemen—The object of this meeting is to endorse the action of the Hon. John Walter Smith, governor of the State, in recommending to the legislature the adoption of the suggestion of the State Board of Health that a commission be appointed to investigate and report upon the best means of ameliorating the condition of those of our fellow-citizens who are sufferers from tuberculosis, and to prevent the further propagation of this disease.

It is not necessary to be a practicing physician or a graduate of any particular school of medicine to find out that tuberculosis is communicable and curable, and doubtless many of you have gained this knowledge by your own observations in the cases of some of your friends or relatives, or, possibly, in your own persons, and the truth of this statement, I believe, is now concurred in by almost every practicing physician.

Personally, I am familiar with an individual case, where the disease was unquestionably communicated from a sick to a healthy person, and that in the latter case, at least, the patient was cured. The means adopted were mainly large doses of fresh air, obtained whilst quietly living in one of our cities, proving that it is not necessary to visit high and distant altitudes to obtain this remedy, one of God's free gifts to suffering humanity.

I do not mean to say that fresh air is the only thing needed to cure tuberculosis, but I do believe that without it a cure is almost impossible. But pure, fresh air, correct diet, and proper drugs, administered by trained nurses under advice of competent physicians, will, in many cases, produce cures in the earlier stages of the disease, and will greatly ameliorate the sufferings of those that are incurable, and *isolation* from the general public will unquestionably prevent its further propagation.

Others will tell you of the pecuniary cost and loss to individuals and the State caused by the frequency of this disease, but from the standpoint of humanity alone I would appeal to all to do whatsoever may be in their power, with or without State aid, to provide appropriately located rooms, the necessary diet, the trained attendants, and competent physicians to care

for all those afflicted with this dread disease, in order that suffering may be decreased to the minimum, that cures may be increased to the maximum, and that the further spread of the disease may be checked, and eventually, we hope, be entirely eradicated from our midst.

I shall ask Dr. J. McPherson Scott, president of the Medical and Chirurgical Faculty, to take the chair.

Dr. Scott: This meeting, of course, is one that appeals to the finer sensibilities of us all. We are here to consider the means that have been adopted elsewhere in the management of tuberculosis, and which the practical experience of those having charge of such means has shown to be most successful. We are here to consider the best means of restricting, controlling and possibly eradicating that disease which in all time has been known as the chief scourge of mankind.

We thank you for this very excellent audience, and I hope that the work done here tonight will bring forth such fruit as will put Maryland where it properly belongs, in an earnest effort to control this dreadful malady.

Dr. John S. Fulton, secretary of the State Board of Health, will interest you with some remarks and lantern demonstrations.

Dr. Fulton: If 500 years may be considered old age for a medical doctrine, then the belief that consumption is communicated from person to person is old. Wise observers have during all that period held and taught that consumption is communicable, and unwise people have from time to time been seriously disturbed by such teaching. In various parts of Italy during the eighteenth century this belief was quite generally held by intelligent laymen as well as by medical men, and was recognized in the written law. In Naples failure to report a case of consumption might cost a physician some \$600, and for a second offense he might be banished for ten years. In Spain and Portugal, also, this belief had quite a long vogue, and as late as the year 1839 Madame Sand tells us that her friend, Frederic Chopin, was turned out of his lodging in the Island of Majorca, required to pay for disinfecting the house, and suffered other indignities because he had consumption.

Early in the nineteenth century came a Frenchman, Laennec, who forced upon the medical mind of his day the idea that the several diseases which were associated with one anatomical sign, namely, the tubercle, were, in fact, one disease. Fifty years passed, and Laennec had long filled a consumptive's grave before his views ceased to be doubted.

If consumption is communicable, then proof could be made by experimental inoculations of tuberculous material. Those who read the newspaper accounts of such inoculations in the twentieth century may be interested to know that such experiments were made as early as 1789, and were repeated by various observers until 1843 before the first successful inoculations were recorded by Klencke. The year 1865 arrived before a series of successful inoculations was reported, and in that year Villemin announced his conviction that tuberculosis was due to an inoculable agent, a virus, which was contained in tuberculous material, but did not consist of any of the known elements of tubercle. There was wrangling over this view, but it gained ground steadily until 1882, when Robert Koch announced his discovery of the bacillus of tuberculosis, and furnished final proof that con-

sumption and all other tuberculous diseases are due to, and cannot exist apart from, this particular germ.

It is from this date that we reckon the flood-tide of our reasonable hope of finally overcoming this great scourge, and our certain knowledge that the disease is often cured. Since the date of Koch's great demonstration there have also arisen many unreasonable fears, for it has been found that tuberculosis is almost everywhere, affecting both men and animals in a great variety of ways; that there is a tuberculosis of beasts, another of birds, and another of cold-blooded animals. So we came upon a rather appalling view of the situation, and there is some present relief in the doubt about the intercommunicability of tuberculosis between man and the domestic animals. There is quite solid comfort, too, in the acknowledged slight importance to man of those races of tubercle bacilli which live in the bodies of lower animals.

Considered as a strictly human parasite, the tubercle bacillus owes but little to its individual energy. In this respect it is outranked by the majority of disease organisms. Indeed, the tubercle bacillus is but a camp-follower after measles, whooping-cough, grip, typhoid fever, pneumonia, diabetes, and other diseases more aggressive than itself. It makes alliances also with the misfortunes, the sins, negligences, and ignorances of mankind. A feeble parasite in itself, it has, by taking advantage of almost every agency that disables men, come to be regarded as the chief scourge of the race.

I have hung upon the wall some charts which show what rank this parasite holds among the causes of death. You will observe that the figures for Maryland are from the mortality returns for a single year, those for Baltimore cover a period of five years, and the dial is derived from the mortality of the United States for the census year 1890. Here also is a chart made from the losses of the Prudential Insurance Co. in its industrial business for a period of five years. The actual number of deaths from consumption represented in the Maryland chart is but 1000, in the Baltimore chart about 6000, and on the dial more than 100,000. So that the four charts have every internal evidence of truthfulness, since they all show each disease in about the same relative position, and they agree in giving consumption a long lead over its nearest competitor, pneumonia.

Since we have said that the great prevalence of tuberculosis is due rather to its sinister alliances than to its specific energy, let us inquire what are its negotiable relations. It was long ago learned that consumption prevailed largely as a result of bad housing. The mortality of the British army up to 1846, when soldiers were crowded in ill-ventilated barracks, was 11.9 per 1000. In proportion as the allowance of space per man was increased the mortality fell, until in 1870 it had fallen to 2.3 per 1000, and since then, with the more definite knowledge of the causes of tuberculosis, the mortality has been still further reduced.

The consumption mortality in prisons is in general about four times that of the free population. To be more accurate, I should say that tuberculosis was formerly about four times as prevalent in prisons. It is one of the anomalies of our so-called civilization to defend our prisoners against certain

dangers, while leaving the free population in respect to the same dangers quite defenseless. The recorded observations of an investigator who looked for tubercle bacilli in dust collected from various places show that the bacilli were not found in two places, one being the surgical ward in a hospital, and the other being the prison.

The spread of tuberculosis is also fostered by certain conditions of soil. This was first demonstrated, some twenty years before the bacillus was discovered, by Dr. Henry I. Bowditch of Boston, the father of our distinguished guest. Similar, though later, observations were made in England by Buchanan.

The theory of the communicability of consumption derived much support in earlier days from its notable tendency to recur in certain houses. Flick of Philadelphia was a pioneer in this line of investigation, and quite recently certain observations of the New York City Board of Health have shown the remarkable influence of infected houses in propagating the disease. In one ward of that city it was found that 10.5 per cent. of the houses contained all the tuberculosis in the ward. Of these infected houses, 28.2 per cent. contained 55.8 per cent. of all the cases of tuberculosis. In another ward 7.1 per cent. of all the houses contained all the tuberculosis, and of these tuberculous houses 18.9 per cent. contained 44.3 per cent. of all the tuberculosis. Thinking that a diagram might be somewhat more impressive than the figures, I show you two charts, in which these figures are plotted upon a square which includes just 200 ruled spaces, each representing a house, and the proportionate number of black dots, each representing a death from tuberculosis, distributed just as they were found in the original investigation.

These charts show that tuberculosis is as definitely related to foci of infection as is scarlet fever or any other acute infectious disease.

In order to show how the several accessory causes of tuberculosis may combine with the essential cause—the infection—I show you two diagrams made up from the figures which Lancereaux recently published, based upon his personal records of 2192 cases. Here one observes the very important influence of alcoholism as a secondary cause of consumption, and the relations which sedentary habits, privation, child-bearing, and heredity bear to this disease.

As illustrating the comparative statistics of consumption among wage-earners at various occupations, I show you a few charts from the industrial experience of the Prudential Life Insurance Co.

Tuberculosis loves the poor. The consumption mortality among the well-to-do is to that of the poor about as 3 is to 5. Numerous observers have pointed out that the consumption mortality increases as the social scale descends. If you will examine closely the charts of the Baltimore City Health Department, showing the deaths from consumption, you can hardly fail to be impressed with numbers of little black dots collected not only where the poor are huddled, but also in the best parts of the city, along those narrow streets and alleys which interlace the quarters occupied by the wealthy. In the lower social strata consumption does not spend so much time in killing its victims. A recent English observer divided consumption into two classes according to their incomes, and found that those

whose incomes were above \$500 a year made an average fight of seven and one-half years against their disease, while those whose incomes were less than \$500 succumbed in about half that time.

Society grinds the face of the poor wage-earner, and the poor man sends into the strata above him unpremeditated but gruesome recompense.

The consumptive poor we have with us in great number, for poverty is a cause of consumption, and consumption a cause of poverty. We spend a vast amount of public money upon our dependent classes, but the consumptives are nowhere specified. Our plan, therefore, is to care for the consumptive, as Dr. Pryor says, "in the wrong way, at the wrong place, and at the wrong time, until he is dead," instead of "in the right way, at the right place, and at the right time, until he is cured." Dr. Peter Bryce, secretary to the Board of Health of the Province of Ontario, says that the forty-seven hospitals of the Province spent \$160,000 in the year 1900 upon poor consumptives, although there was no hospital in the Province prepared to undertake the correct treatment of the consumptive.

Knopf estimates that every poor consumptive in the city of New York costs the city during the period of his affliction \$522, and you can guess for yourselves about how many of the 8000 annual deaths from consumption in New York city occur among the dependent classes, and what they annually cost.

All these considerations should fill us with hope, for they show that consumption may be restricted by certain indirect methods intended to break up the many alliances which give to tuberculosis its great and baneful power. Great good can be and has been done in this way, but we are now in a position to engage the enemy hand to hand, and since the consumptive himself is the distributor of the tubercle bacillus, we must deal directly with the consumptive.

We need to know how many consumptives there are in Maryland, how far the moral and material welfare of the State is impaired by the disease, what peculiarities of our social and industrial life, of our soil and climate, contribute to the spread of consumption, how the distribution of infectious material in expectoration or other vehicle can be prevented. We need to disinfect the house of the consumptive at intervals during his illness and immediately after death; we need to teach the consumptive to defend himself and those about him from his infection. Here is not only a field for scientific activity, but also scope for humane endeavor, and a complex problem in practical politics. We shall go against the tyranny of ignorance, vice and greed, which propagates consumption. We shall encounter the opposition of more than one powerful interest, but we shall at no time and on no account show any other than a friendly countenance to the consumptive himself. He shall not be placarded or coerced. We shall not fear him, nor he us. He shall receive the word of hope and the touch of pity. We shall make amends to him, for his infirmity is the iniquity of us all.

Dr. Bowditch: Address (see page 97).

Dr. Scott: I see we have with us this evening the mayor of the city, Mr. Hayes, who, I am sure, will avail himself of the opportunity of making some remarks.

Mayor Hayes: As you all know, I am not a medical man, but I have a great interest in all matters that pertain to the public health and to the subject of human ailments. I suppose this feeling has become stronger since I have been in public station as mayor of the city, because I have seen that there is such a growing need for greater governmental attention to many of the ailments that afflict the mass of the people.

I cannot give to this intelligent audience an account of the things that are regarded by the medical men as standing in causal relations to this terrible disease, but this I do know, that it is a blighting ailment to the human race. We see it in the administration of the city's affairs. There cannot be a difference of opinion in the minds of thinking people as to its being a distinctly governmental function to take care, if of nobody else, at least of our indigent sick. Baltimore, I am sure, tries to do its best along this line. The distinguished doctor that you have just listened to is, I am advised, at the head of a great tuberculosis sanitarium in Massachusetts, which has been remarkably successful in this matter. It is the demand of the age in which we live that the disease should be treated in this way—in sanatoria.

I think that there could be no greater monument to the State of Maryland than for it to follow the example of Massachusetts, and have a State institution for the treatment of tuberculosis.

I do not know whether the doctors are *au fait* in handling legislative bodies in these matters. It requires great ingenuity to handle them. They do not always readily see the merits of a claim. I have been advised today that one of the leading physicians, I think, of the world, Dr. Welch, has been battling manfully to get you a municipal hospital in an appropriate location. Let the good people of Maryland help the medical faculty of the State in their efforts to follow the example of our sister States, and get an institution for the treatment of tuberculosis as soon as possible.

You know, the good people of this city, when they determine to do anything, are mighty apt to accomplish it, and I do hope that this gathering tonight will give a fresh impetus to the efforts being made to secure a sanitarium for the cure of tuberculosis. And I want to say to these doctors—I could not say less, feeling as I do about the matter—that the mayor will help them all he can.

Dr. Osler: Mr. Chairman and my long-suffering, patient, inert fellow-citizens—You have heard two aspects of the tuberculosis question—first, the interesting statement, with reference to the existing prevalence of the disease, from Dr. Fulton; and second, the modern means whereby the disease may be, in a very considerable number of cases, arrested. Now, what is our condition in this city, and what are we doing for the 10,000 consumptives who are living today in our midst? We are doing, Mr. Mayor and fellow-citizens, not one solitary thing that a modern civilized community should do.

Through the kindness of a couple of ladies—God bless them!—I have been enabled in the past three or four years to have two of the medical students of the Johns Hopkins University visit every case of pulmonary consumption that has applied for admission to the dispensary of our hos-

pital, and I tell you now that the story those students brought back is a disgrace to us as a city of 500,000 inhabitants. It is a story of dire desolation, want, and helplessness; and of hopeless imbecility in everything that should be in our civic relation to the care of this disease. No instruction on the part of the State or city, none whatever. These people have had no instruction except what those two young women have given them. There is no law in this town, Mr. Mayor, which compels the report to the Board of Health of cases of consumption, though I know the Board is anxious for such reports, to have the cases reported so that the health authorities can carefully inspect the premises. There is no provision whatever for the proper disinfection of the houses where death from consumption has occurred. John Smith will die of tuberculosis at such a number in a certain street tomorrow. There will be no notification to the Board of Health, no request for disinfection of the house. There is no effective provision for disinfection, nor any organized effort to secure such a provision. The Board of Health has not the men nor the means to disinfect the tuberculous houses in this city. Mr. Mayor, you can read for yourself the plain reports of the cases. In the large majority of these cases the condition is, as you would agree, appalling.

Now, what is the remedy? It is simple. It is very easy. It is so simple and so easy that we won't get it for a good many years. It is a sad thing to think of, but it will be five years yet before we get a law compelling notification of cases of tuberculosis to the Health Board in this city. Yet we all know that there should be notification and careful inspection in every single case. It works no hardship to have the Board of Health know that a case exists in the family, even in the best houses of Mt. Vernon Place. It can be done quietly and easily, and without placarding or making the patient feel that he is a social outcast. It can be done properly and easily under systematic management. And what apparently we won't get for a good many years later is a sanitarium in this city such as you have had described to you tonight, so that any dispensary physician can take his pencil and write: "Mr. Health Commissioner—Please admit John Smith, a case of early and curable tuberculosis, to the Civic Sanitarium, where, I think, he has reasonable prospect of permanent cure." That we will not see for a good many years, I am afraid. Another thing that we should have is a hospital in which the advanced cases that cannot be taken care of at home can be treated, where there can be proper care of the sputum of the patients, which is at present a constant source of danger to the community.

This is the whole matter in a nutshell, Mr. Mayor and fellow-citizens. Now, what are you going to do about it? Nothing. It is not the fault of the mayor and city council, but of the citizens, and unless you get them awake nothing can be done. If you can once get the people awake, it doesn't make any difference if the mayor and city council are asleep. It is you, fellow-citizens, that must wake up, and if you would get wide awake, and remain awake a short time, I would like to tell you what to do.

Mr. Mayor, you may close your ears, because I know you are a good, hard-working fellow, and don't get your desserts. But I would go to Mr. Bernard Carter—he is a framer of charters, you know—and I would say: Mr. Carter, we want a new charter in this old town. We are sick to death

of mayors and first branches and second branches. In heaven's name, what have they done for us in the past? I can tell you what they have done for us in the thirteen years I have been here. To my positive knowledge they have paved two or three streets east and west, and two or three streets north and south, and, by the Lord Harry! I could not point to a single other thing they have done. They haven't given us a municipal hospital, they haven't given us a sewerage system, and we are still begging for lots of other things. I would say to Mr. Carter: We want something new, and something good, and you just frame a charter without any of the ancient tomfoolery, old-time mayor and city council. Give us a couple or three good men and true who will run the city as a business corporation. It would not take us a year, then, Mr. Mayor, not a year, to get a start on a sewerage system and an infectious-disease hospital, and everything else that the public welfare demands. We would have a sanitarium system complete within a few years. And here is another matter of importance—your taxes would be reduced.

One point in conclusion, because it is important. People are scared at the idea of a tuberculosis hospital near them. Now, there need be no such fear at all. If I were asked tonight where is the safest place in the world for a person who has this fear, I would name two places—Dr. Trudeau's sanitarium, and Dr. Bowditch's sanitarium. These are the two places in which the sputum is best taken care of, and therein lies the greatest safety from the disease. Where the sputum is properly cared for in a tuberculous case there is little or no risk, and there need be little fear of catching the disease.

Dr. Scott: The address of Dr. Osler concludes the program, but there are others here I am sure from whom we would like to hear. I would ask Dr. Welch if he will not say something on the subject.

Dr. Welch: I am convinced that the crusade of these recent years against tuberculosis is one of the greatest movements of modern times. Now, if it is to be successful, it needs more than the activity of the medical profession—it needs the co-operation of the whole community. I have sometimes thought that in one respect they have the advantage of us on the other side of the water. When the Prince of Wales put his hand to this movement it became a great success; when the King of Sweden did the same, and the Emperor of Germany, they had the influence to arouse the whole nation. If the people of this city and this State would combine for such an inspiring movement as this, and make a concerted action to secure at least one sanitarium at the present time, I believe it would be of immense advantage to this Commonwealth not only in a direct way, but in many indirect ways. It would bring to the home of the patient the kind of knowledge that would prevent the origin of new cases of the disease. I can only most heartily endorse all that has been said tonight.

Dr. Scott: I feel that we will all leave this room with a freshened hope that an inspiration will arise from the words that have been spoken here this evening, and will spread not only in Baltimore city, but throughout the whole State, until the legislature will see that a part of its function is the safeguarding of the public health. Thanking you for the interest you have manifested, I declare the meeting adjourned.

A rising vote of thanks was given to Dr. Bowditch for his interesting paper.

Book Reviews.

GAYLORD AND ASCHOFF'S PATHOLOGICAL HISTOLOGY. The Principles of Pathological Histology. By Harvey R. Gaylord, M.D., Professor of Surgical Pathology in the University of Buffalo, N. Y., and Ludwig Aschoff, M.D., Professor and First Assistant in the Pathological Institute of the University of Göttingen, Germany, with an introductory note by William H. Welch, M.D., Professor of Pathology in Johns Hopkins University, Baltimore. In one very handsome quarto volume of 354 pages, with 81 engravings in the text and 40 full-page plates. Cloth, \$7.50 net. Philadelphia and New York: Lea Bros. & Co.

Photomicrography may be said to have reached its acme of success in the handsome volume of Gaylord and Aschoff.

We have never seen clearer and more accurate reproductions of histological specimens. Each one of the forty plates will repay close study. The plates are produced by the heliotype process. The work is at once an atlas and a text-book. The book is divided into three parts. Part I includes methods for the manipulation of fresh material, and for the preparation of hardened material. Most of the best methods of fixation, hardening, and staining are given in detail. Part II deals with the pathological histology of organs. The various organs are taken up in order, beginning with the heart. Preceding the pathological description of each organ, we find a short review of the histological structure. We do not suppose that the brief description is meant in any way to replace the more elaborate descriptions found in our modern text-books on histology, but merely to recall to the mind of the student some of the leading features in the structure of the organs. It does this in a brief manner, at times rather too briefly. The text is a presentation based upon the teachings of Professor Orth. Part III contains a simple exposition of the optical problems upon which photomicrography is based, and will be found extremely helpful to anyone interested in this science.

We would call especial attention to the excellent chapter on tumors, in which the latest theories as to the etiology of malignant growths are clearly set forth. The work is replete with references to the literature of the subjects therein discussed. Numerous typographical errors occur. These will undoubtedly be corrected in a later edition. For the advanced student and graduate the work may be heartily recommended. H.

VENEREAL DISEASES. Manual for Students and General Practitioners. By Jas. R. Hayden, M.D. Third revised edition, pp. 301. Philadelphia: Lea Bros. & Co. 1901.

This third edition appears considerably enlarged, and in much more attractive form than previously. Much of the text has been rewritten and very greatly improved, and this manual now forms probably the best brief

treatise on the venereal diseases—gonorrhea, chancroid, and syphilis. Although called a handbook, the scope of the book being limited to three diseases and their complications, 300 pages cannot be considered a very brief treatise, and would therefore seem to have justified the introduction of considerably more matter of the anatomy, histology, bacteriology, and pathology of the subjects treated, for without a proper knowledge of the anatomy of the genital tract, how difficult is it for students ever to become expert in diagnosis and in treatment? How impossible is it, without a knowledge of the complex histology of the urethra and its adnexa, for the student to understand the manifold gonococcus infections and the extreme difficulty of their cure? An accurate knowledge of the pathology of gonorrhea is so absolutely necessary for intelligent treatment that the treatise, however brief, should be complete in this respect.

The present volume is a considerable improvement upon the old ones as regards the bacteriology of the gonococcus, but we cannot agree with the author, who states that the specificity of the chancroid bacillus of Ducrey has not been established, for there is certainly abundant experimental proof that this organism is the true cause of chancroid.

The treatment of syphilis is handled in a very comprehensive and thorough way, and, in our opinion, occupies entirely too much of the space at hand. The subject of gonorrhea and its treatment, which is the great stumbling-block to students and practitioners, is handled in much too brief a manner. The author still adheres to his belief that urethral and bladder irrigations performed without a catheter are dangerous, and never should be employed. We cannot understand how such a position can be maintained at the present day. The treatment of stricture is very fully discussed, but the great important conditions preceding it are passed over with very little reference to the pathology and the various diagnostic methods which are in vogue. The author has lost a valuable opportunity to give us a thorough and comprehensive treatise on gonorrhea, which at present is not to be found in the English language. Y.

THE MEDICAL NEWS VISITING LIST FOR 1902. Weekly (dated, for 30 patients); Monthly (undated, for 120 patients per month); Perpetual (undated, for 30 patients weekly per year), and Perpetual (undated, for 60 patients weekly per year). The first three styles contain 32 pages of data and 160 pages of blanks. The 60-patient Perpetual consists of 256 pages of blanks. Each style in one wallet-shaped book, with pocket, pencil and rubber. Seal-grain leather, \$1.25; thumb-letter index, twenty-five cents extra. Philadelphia and New York: Lea Bros. & Co.

The Medical News Visiting List has been coming to us for many years, and is always a welcome addition to our stock in trade. The edition for 1902 is fully up to the standard of previous years, and is handsomely bound, and contains much useful information. It is issued in four styles, suited to the various needs of different practitioners, and we confidently recommend it to any physician needing a visiting list.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, MARCH, 1902.

BALTIMORE'S DEFENSES AGAINST SMALLPOX.

THE contented citizens of Baltimore have no doubt a serene confidence in the Health Department, and the observant members of the medical men express particular satisfaction with the recent operations in the control of smallpox. In this connection one may chronicle the latest history, which is quite striking.

On Saturday afternoon, February 1, a suspicious eruption appeared on a negro who had been for three days a patient in University Hospital. The Health Department was notified, and the case, being recognized as one of smallpox, was promptly removed to the Quarantine Hospital. The patient was a cattleman from the ship "Vedamore," some four days in from Liverpool. By 3 o'clock on Sunday morning the whole ship's company had been vaccinated, and a list of those who had left the ship was ready for distribution to the police stations. The ship's log showed that on the westward trip a cattleman died of "peritonitis," and was buried at sea some four days out from Baltimore. The captain admitted that the man had a profuse eruption, which the captain attributed to variola major.

Of the men who left the ship, all but one were found before Wednesday morning, and the inmates of the houses where they stopped were vaccinated. There was at that time no trace of the missing cattleman, but he was later accounted for in an interesting way. He went from Baltimore to a town in Western Pennsylvania, where he developed smallpox. Although he moved about with his eruption out for a week, his condition did not attract any particular attention. On the night of February 11 he came to Baltimore on a passenger train, arriving at Camden Station about midnight. Within fifty feet of the station, and within five minutes of his arrival, he was apprehended by Patrolman Mumford, and is now a guest of the city at Quarantine Hospital. When he gave his name the "Vedamore" list was complete. A Baltimore physician, hearing this story, inquired whether the Philadelphia Health Department would not be better manned with Baltimore policemen.

One of Baltimore's chief distinctions just now is her apparent immunity to smallpox. Preparations for the anticipated epidemic of 1902 were begun nearly four years ago. While the results up to the present time have been all that could be desired, it is by no means certain that our defenses are good enough for any probable emergency. The very recent landing of infected persons from two ships following each other at but a week's interval from the same British port has again called attention to our serious lack of facilities for handling any considerable number of sick or exposed persons. Sixty patients will crowd the Quarantine Hospital. There is no place for the detention of suspects or contacts. The Quarantine officer has one small tug for all the services of his station, including the transportation of patients. It is evident, therefore, that we are unprepared for a contingency which is perhaps rather near. There are at present eleven cases at Quarantine, the largest number at any one time in several years. Of this number, nine came from the ships "Vedamore" and "Indore," and none of these were in the city and outside of official surveillance more than two days. The tenth case came from Philadelphia, and the eruption was five or six days old when she was discovered.

It is a somewhat significant fact that at the meeting of the Liverpool Committee of Health on January 23 Dr. Hope, the medical officer, reported eighteen cases of smallpox under municipal care, most of them being cattlemen freshly landed from the United States. From this importation several new cases arose before February 4. This circumstance shows how we in Baltimore may be confronted with a rather serious situation without the aid of a hidden focus among our own population.

THE FUNERAL OF A CONSUMPTIVE.

THERE recently appeared in the Baltimore morning papers a dispatch which said that a trustee of a church in Howard county had refused the use of the edifice for the funeral of a consumptive. It was said that the funeral party was at the church door when the trustee interfered, and that much hard feeling was consequently engendered.

Such an extraordinary manifestation of phthisiophobia seemed well worth investigating. It was found that the funeral of the person named in the dispatch had indeed been delayed at the church door, but the explanation was very simple. The family of the deceased was in no way attached to the church, and did not live in the vicinity. No arrangements had been made to hold the services at the church. Of course, the funeral party found the church locked, and the country-side had to be scoured in search of the trustee who had the keys. There was, we are assured, no objection upon

any ground by anyone to the use of the church, nor any cause of delay other than that here given. The newspaper story was widely copied, and became a subject of comment by medical editors.

It would not be surprising if some such thing should really occur. A number of letters have been received at the office of the State Board of Health inquiring as to the particular preparation of the bodies of consumptives, and as to the propriety of holding public funerals, and we may assume that similar inquiries are more frequently made of local health officers.

The appeal to fear has always a speedier effect than the appeal to reason, and in agitating the tuberculosis question the easier means of moving the public have been too much employed. There has been so much preaching about the expectoration, the clothing, the hands, the books, the cough, the kiss, and even the laugh of the consumptive, that it is little wonder if some people are afraid of all consumptives, living or dead.

SMALLPOX AND POLITICS.

THE city of Philadelphia is at present suffering from both typhoid fever and smallpox in epidemic proportions. With respect to smallpox, this announcement might have been made three months ago, and with respect to typhoid at any time in the past two or three years. No American city is better provided with men and means to control the spread of infectious disease, and yet there is not a spot in North America whose absolute need of a great pestilence is as old or as urgent as that of our patient neighbor, Philadelphia. For years and years the powers that prey, disguised as public officials, have heaped insult and outrage upon a populace whose protest can hardly be distinguished from consent. Murder and rapine could scarcely deepen the political degradation of Philadelphia, and it is not certain that smallpox can make it sufficiently spectacular.

Smallpox has more than once appeared in history as a political reformer of tremendous energy. Between epidemics a generation of rogues may grow old and fat, so that the wisdom of loot is no more concerned with the advent of smallpox than with the crack of doom. The present epidemic is a means of grace, if the people will so accept and employ it. Smallpox has already shown the Department of Health to be as ineffective as the rest of the ramshackle machine, and may presently expose the one vice which is disavowed by the impudent operators of the machine—cowardice. The gang will whimper when the signs of the day of wrath appear, and the signs of that great day are read not in the spending and spoiling of human life, but in obstipated business and evacuated wealth. The powers that punish business blunders have no bowels of compassion, and will make no mistakes.

Medical Items.

DR. J. WILLIAMS LORD is spending part of the winter in Cuba.

DR. HENRY CORSON, aged 108 years, died on February 7 in Forest City, Pa. He was born in Camden, N. J., on March 15, 1794.

DR. THOMAS W. SIMMONS of Hagerstown was acquitted by Justice Hoffman on February 1 of the charge of failing to report a case of diphtheria.

It is said that more than fifty citizens of San Francisco have recently been arrested for violating the ordinance forbidding spitting in public places.

DR. LEANDER WACHTER died at Ellerton, Frederick county, on February 24, aged seventy-one years. Dr. Wachter had been in practice for fifty years.

DR. KNAPP of St. Louis, who has been for five months isolated as the attendant of the loper, Dong Gong, has tired of his job, and has resigned, or recanted, or flunked.

THE Section on Neurology and Psychiatry of the Medical and Chirurgical Faculty met at the Sheppard and Enoch Pratt Hospital on Friday evening, February 14.

DR. ACHILLES ROSE delivered an address before the Book and Journal Club on Wednesday evening, February 19, making a strong plea for the correct use of Greek in medical onomatology.

AMONG the medical men who received honorary degrees at the recent celebration of Johns Hopkins University were Drs. W. T. Councilman, Harry M. Thomas, Robert L. Randolph and John S. Billings.

THE twentieth anniversary of the Woman's Medical College was celebrated on February 22. The speakers were Drs. Louise Erich, W. M. Lewis, Henry Lee Smith, W. F. Skillman, Henry P. Hynson, and F. M. Chisolm.

THE health authorities of Plymouth, Pa., are said to have declared a war of extermination against dogs and cats, believing that these animals spread smallpox. In Baltimore we shall proceed more mercifully. We shall vaccinate the sparrows.

DR. HENRY J. BERKLEY is recovering from an accident which nearly cost him an eye. The escape of a steel spring with which he was working inflicted a penetrating wound of the cornea, injuring the iris. He was attended by Dr. James J. Mills.

HEALTH COMMISSIONER BOSLEY has taken an old house on North street, above Lexington, for the detention of smallpox suspects. The usual row has arisen. The rooms occupied by the Appeal Tax Court would serve this purpose admirably.

THERE are at present two cases of smallpox in Maryland outside of Baltimore—one in Frederick county, and one in Dorchester. The entire number for the State down to February 22 was seventeen, of which twelve were reported in Baltimore, and five in the counties.

THE State Board of Health of Iowa has given the local board of health of the city of Des Moines seventeen days' time in which to demonstrate its ability to handle the smallpox situation. If its failure shall be apparent at the end of that time, the State Board of Health will intervene.

THE large sanatorium at Battle Creek, Mich., was burned on February 18. The fire broke out at a very early hour in the morning. One life was lost among the 450 persons sleeping in the building. The loss amounts to about \$500,000, against which there is but about \$100,000 of insurance.

DR. CLARENCE JOHN BLAKE, professor of otology in Harvard University, made an address before the Section of Ophthalmology and Otology of the Medical and Chirurgical Faculty on Thursday evening, February 20, on "Education in Otology From the Standpoint of the Medical School."

THE bill to create a tuberculosis commission is likely to pass the general assembly without opposition. The commission is to be appointed by the governor, and is to consist of five members, of whom three are to be physicians. All institutions having medical officers, and supported in whole or in part by the State, are required to furnish the commission certain sorts of information concerning tuberculosis. The commission passes out of existence after two years.

DR. PAUL FORTUNATUS MUNDE died at his home in New York on February 7 of heart disease. Dr. Munde was born at Dresden in 1846, and came with his father, who was a political exile, to the United States in 1849. He graduated in medicine at Harvard in 1866, and spent several years in study and practice abroad. From 1874 to 1892 he was editor of the *American Journal of Obstetrics*. He was professor of gynecology in the New York Polyclinic and in Dartmouth Medical College.

DR. IMMANUEL PFEIFFER, a star physician, according to Polk, and an agitator against vaccination, recently gained admission to a smallpox hospital. He made public announcement that he had exposed himself to smallpox for the sake of proving his theory of the non-contagiousness of the disease. His attack of smallpox is said to have been quite severe. Dr. Pfeiffer had been vaccinated in childhood. It is therefore no fault of Dr. Pfeiffer's that the result of his experiment was not entirely satisfactory.

THE famous Gallinger bill has again been introduced in Congress to regulate animal experimentation in the District of Columbia. While pretending to be aimed only against experiments performed in the District of Columbia, its real intent and its effect, if it should become a law, will be to obstruct scientific investigation and medical instruction throughout the United States. All members of the profession should inform their representatives in Congress of the real nature and purpose of this bill, which is known as Senate bill No. 3068.

THE investigating committee to inquire into the recent antitoxin disasters at St. Louis has reported that the serum of September 29 was known to Dr. Arnaud Ravold to be poisonous, and that he did not cause it to be destroyed. The serum was bottled by Henry Taylor, janitor and laboratory assistant, who did not know that it was poisonous. The committee recommended the discharge of Dr. Ravold and of Taylor, and that the manufacture of diphtheria antitoxin be abandoned. The facts were established upon the testimony of Dr. Ravold.

THE tuberculosis meeting in McCoy Hall on January 28 was a great success. A large audience taxed the capacity of the hall, and a lively interest was manifested in the proceedings. Dr. Osler's fiery speech particularly pleased the assembly. A report of the proceedings is pub-

lished in the present issue. An interesting movement, which is popularly regarded as an outgrowth of this meeting, but which, we are informed, was in process of incubation earlier, is the formation of the Quarter Club. This movement is the work of a number of young women who propose to raise the sum of \$5000 in Baltimore by the first of May. They have issued books of coupons, each coupon having a value of twenty-five cents, and expect to dispose of the whole issue within the next two months. It is intended to extend this plan throughout the State, and to devote the funds so collected to the cause of curing early cases of pulmonary tuberculosis. The board of directors of the Quarter Club includes Miss Lucy J. Miller, president; Miss Ella Slingluff, secretary; Miss Ella Reeves, treasurer; Miss Mary P. B. Findlay, Miss Eleanor D. Hunter, Miss Eleanor George, Miss Helen Wilmer, Miss Henrietta Brooks, Miss Ethel Miller, Miss Amy Miller, Miss Rebecca Keys, Miss Mary Albert, Miss Esther Robinson. Mrs. Robert Garrett has agreed to act as treasurer for all sums of money larger than a quarter of a dollar, and the directors have asked all who wished to contribute large amounts to send them to Mrs. Garrett, 11 West Mount Vernon Place. A number of ladies have promised to serve on the advisory board of the club. Among them are Mrs. William Osler, Miss M. A. Nutting, Mrs. Robert Garrett, Miss Barnard, Miss Carr, Mrs. Isaac E. Emerson, Mrs. J. M. T. Finney, Mrs. Warren Buckler, Mrs. William Pinkney Whyte, Jr., Mrs. T. Harrison Garrett, Mrs. William M. Ellicott, Mrs. James Carey, Mrs. William Dixon, Mrs. I. E. Atkinson, Mrs. Carter G. Osburn, Mrs. Frank Frick, Jr., Mrs. Edward Shoemaker, Mrs. Charles E. Rieman, Mrs. J. W. Chambers, Mrs. Berry Iglehart, Mrs. John Timothy Stone, Mrs. John Daves, Mrs. Frank Gosnell, Mrs. E. T. Norris, Mrs. Blanchard Randall, Mrs. E. A. Robinson, Mrs. Daniel Dorsey, Mrs. Edgar Miller, Mrs. Isaac Dixon, Mrs. G. D. Penniman, Mrs. I. Ridgeway Trimble, Mrs. Hatfield, Mrs. Chas. O'Donovan, Mrs. Harry Thomas, Mrs. Edgar Lazarus, Mrs. Jacob Cohen, Mrs. H. P. Gilpin, Mrs. Henry Hilken, Mrs. Taylor, Mrs. Mary Burke, Mrs. Samuel Earle, Mrs. Ernest Neale, Mrs. John Pleasants, Mrs. J. Hillen Jenkins, Mrs. Kemp B. Batchelor, Mrs. Samuel C. Chew, Miss Helen C. Bartlett, Mrs. Kemp Bartlett, Mrs. Howard Kelly, Mrs. Joshua Levering, Mrs. Joseph France.

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A CONSIDERATION OF THE BOTTINI OPERATION FOR ENLARGEMENT OF THE PROSTATE, WITH REPORT OF SOME CASES.

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WHEN we consider the great frequency of enlarged prostate in old men, it appears that the treatment of this ailment should form one of the most important phases in surgery, and when we think that this most distressing condition is entailed upon men in advanced years, when they should have passed most of the ills of life, and be entitled at least to rest, it presents a spectacle most pathetic. Thompson collected a large number of cases, and from them concluded that 34 per cent. of all men over sixty had enlarged glands, and 16 per cent. gave distinct trouble. In later statistics by Johnson, 360 men over fifty-five years of age were examined. Of these, 75 per cent. had a perceptible enlargement, and 18 per cent. decided trouble; 15 per cent. had very large glands, and of these, 25 per cent. had great difficulty—tenesmus and cystitis.

Anatomical Conditions.—The gland is composed in most instances of two lobes, each containing thirty to forty lobules. In 13 per cent. there is more or less glandular substance situated posteriorly, which may or may not be connected with the two lateral lobes, and which forms what is known as a third lobe.

Pathological.—The gland enlarges in three distinct ways—first, hyperplasia of the gland substance; second, hyperplasia of the muscular tissue; third, hyperplasia of the fibrous tissue. The last two mentioned, namely, muscle and connective tissue, are usually associated, and form about three-fifths of all enlarged glands. The gland enlarges as a whole, or it may increase locally by the formation of myomata, or only the third lobe may enlarge, projecting upwards and backwards. The hyperplasia of the gland substance forms a medium-sized tumor mass, which is soft. The muscle, or more especially the connective tissue, presents a very hard, sclerotic gland.

Causes of Trouble.—Difficulty in micturition is produced first by a general enlargement of the gland, which presses directly upon the lumen of the urethra, or upward into the bladder, thus carrying the internal urethral orifice away from the floor of the bladder, or turning it to the side. The third lobe, by its enlargement, forms a distinct valvelike tumor mass over the internal urethral orifice. This last, although usually stated to be the most common factor in obstruction, I am convinced is not so, for the examinations which I have made at autopsies and upon anatomical cadavers have shown me that this valve formation is present only occasionally. The common enlargement is that of a general hypertrophy.

Surgical Procedures.—The operations which have been performed to relieve this condition are very numerous, and have been most unsatisfactory, not from the fault of the operative technique, or its difficulty, but rather from the old, feeble and generally debilitated class of subjects upon whom the operations are performed. General palliative treatment shows a mortality of 34 per cent.; excision of a part of the gland, either by the perineal or the suprapubic route, about 13 per cent. mortality. Excision of the gland as a whole gives a mortality varying from 18 to 30 per cent. Vasectomy shows the lowest mortality, 5 per cent.; excision of the testes, 16 per cent.; formation of a fistula, 12 per cent.; and lastly, Bottini's operation, $5\frac{1}{2}$ per cent. The percentage of cures after the complete removal is 50 to 60; after excision of the testes, 30 per cent.; vasectomy, 22 per cent.; suprapubic excision, 59 per cent., and Bottini's operation, cured and improved, 84.3 per cent.

Freundenberg, in 718 cases of Bottini's operation, gives 682 successes, fifty-five failures. This is 86.63 per cent. cured and improved. Of these, 61 per cent. were cured, and 31 per cent. improved, 7.6 per cent. failures, and 5.25 per cent. deaths. In Bottini's 435 cases, upon which he himself operated, there were 84 per cent. good results, 10 per cent. cured, 2 per cent. not improved, and 2 per cent. mortality. Horwitz, in 888 collected cases, shows 84.3 per cent. cured and improved, 10 per cent. unimproved, and 5.7 per cent. deaths. In his own thirty-three cases there were twenty-two cured, ten improved, one unimproved, and no deaths. In Young's forty-three cases there were three deaths, thirty-eight improved and cured, and one unimproved. In Monocal's 165 cases, eighty-five were cured, forty-one greatly improved, twenty-six partially improved, eight died from the immediate effects of the operation, and six some time afterwards. It will thus be seen that the percentage of cured and improved is over 80, failures about 8 per cent., and mortality between 5 and 7 per cent.

The removal of the testes was heralded at first as a wonderful cure. It has now fallen into disfavor, and some condemn it as never justifiable. I am convinced, however, that for a certain kind of enlargement it is followed by very satisfactory results, but as a general method it cannot be relied upon. Complete removal of the gland, while being probably the most scientific surgical procedure,

is followed by a high mortality, and should always be looked upon as an operation of much gravity. It is suited to a younger class of subjects, who are strong and vigorous, but upon the very old and infirm it is a question whether it should ever be performed. Vasectomy has been attended with some success, but, like excision of the testes, it is unreliable. Ligation of the branch of the internal iliac has been proposed and practiced, but without sufficient results to warrant consideration. The suprapubic removal of the third lobe, McGill's operation, is a much less serious procedure than removing the whole gland, and gives a fair percentage of cures.

Historical.—Bottini, an Italian surgeon in Pavia, performed his first operation in 1872, and published his results in 1874. Very little attention was paid to this except by some of his Italian colleagues, who operated, and reported successful cases. Some years later he recorded fifty-seven cases, with a mortality of only two. Watson reports a case in 1886, Webb in 1889, and Banaghi in 1899. Watson, in London, performed four operations, with three perfect cures. Notwithstanding this, when he read his paper a number of his colleagues denounced it as unsurgical and extremely hazardous.

In 1890 Bottini read a paper before the Tenth International Surgical Congress, in which he reported fifty-seven cases, with thirty-two cured, eleven improved, and two deaths. He closed his paper with these words: "In spite of the brilliant results which I have obtained in so mortal a disease, and against which the usual surgical treatment has offered so little, no one seems to pay any attention to my work. I have not, however, lost courage, and am convinced of the German maxim that with perseverance all obstacles can be overcome." In 1887 Freudenberg, in Berlin, greatly improved Bottini's instrument, and published a paper detailing the number of his successful cases, and giving a more exact technique to the operation. It rapidly sprang into use, and the seeds which Bottini had been sowing quickly matured into fruit. Willy Meyer, in 1897, was the first to perform the operation in this country.

The Instrument.—The instrument as made originally by Bottini was large, hard to introduce, and required a high amperage to heat the knife. Its water-cooling apparatus was also not very efficient. Apparently for these reasons his operation was not noticed. Freudenberg simplified the instrument greatly, made it smaller, with a better water-cooler, and instead of a platinum knife, used one of platino-iridium, which heats with very much less current. Freudenberg's original instrument was made with one knife; later he had instruments made with knives varying from one-half to one and one-half cm. in length.

Young has made a decided improvement. The knife is detachable, and several lengths can be had for the same instrument. The curve of this instrument is more acute, approaching a right angle, which, according to the author, serves to prevent it from slipping

over the neck of the bladder. The electric attachment is so adjusted that the handle does not become hot. Wassidlo was the first to combine the cystoscope with the incisor. This is no doubt an advantage in some respects, but it necessitates making the instrument larger, and I think that, with the proper use of the cystoscope beforehand, it is not actually necessary. Some time later Bierhoff and Freudenberg constructed another, which has the advantage of allowing the hook to press more strongly against the prostate, and at the same time the cystoscope is adjustable, so that it extends outward and beyond the incisor. Newmann of New York has made another instrument in which the water-cooler is dispensed with, the electric attachment being so adjusted that the remainder of the knife does not become heated. It is much smaller, being No. 20, French. Other instruments have been designed by Schlagenweit and Lowenstein, exact descriptions of which are unnecessary.

Operative Technique.—The general outline of the operation is as follows: The patient is prepared as is usual in operations on this region. The parts are thoroughly scrubbed with green soap and warm water, and then with bichloride, and the usual preparations of hands, towels, dressings, etc., are made. About half an hour previous to operation the patient is given a hypodermic of a sixth of a grain of morphia. The bladder is thoroughly irrigated until all the pus and debris have been removed. Then one ounce of a 4 per cent. solution of cocaine is instilled into the urethra by means of a soft catheter. The fluid is made to pass through the whole urethra into the bladder. This remains five minutes, and is washed out with sterile salt solution; then 150 to 500 c. c. of salt solution, according to the size of the bladder, is injected. The instrument is then lubricated with sterile glycerine, and gently introduced. It meets a certain resistance in the prostatic portion, but this can be overcome by slight manipulation. As it passes into the bladder the curved portion can be turned in any direction, showing that it has entered the lumen. During its passage it is advisable to have a finger on the prostate. The instrument is then turned and brought gently down, so that it hooks against the posterior wall of the urethral orifice. This can be accurately permitted to run for about fifteen seconds, so as to insure the knife becoming thoroughly hot. The instrument is held steadily by the right hand, and the finger drawn out so that it does not press upwards on the prostate gland. The wheel is then very slowly and gently turned by an assistant, and the time and progress kept by another assistant, while a third devotes his entire attention to the battery, so as to make sure that the current is continuous. The knife should be drawn forward at the rate of about a centimeter to a minute and one-half, going still more slowly if resistance is met. It is carried, as can be best determined in each individual case, from $1\frac{1}{2}$ to 4 cm.; the screw is then reversed, the knife kept hot, and

returned over its original route at the rate of about 1 cm. per minute. Just before the blade enters its sheath a rest of about twenty to thirty seconds should be taken, so that all the accumulated tissue on the knife can be burned off. The current is then broken, and the water-cooler stopped. The instrument is pushed upwards and inwards until it moves freely in the lumen of the bladder. It is then brought back to the right or left side, and turned at an angle which has been determined by the previous examination. This should be greater or less in different cases, and varies from 45 to 90 degrees, or more, in a few exceptional instances. The cut on the side is done in a similar manner, and it is most important that the knife should be burned off clean before making it. During the incisions the patient experiences practically no pain, the only discomfort complained of being produced by the adjustment of the instrument. There is usually an escape of some bloody fluid from the meatus, and during each incision there is a distinct odor of burning tissue, and a little smoke not infrequently issues from the meatus. After the three cuts have been made, the instrument is removed, and a metal catheter, about No. 24, is introduced, and the bladder thoroughly cleansed. Usually a slight amount of blood is passed, and occasionally a few clots. The patient is put to bed, and a small dose of morphia is given.

The details of the operation will now be specifically discussed. First, in regard to the battery or rheostat: This should be tested in every case just before the operation is commenced, and one assistant should give his entire attention to seeing that the current is continuous. If an ampere-meter is used, the continuance of the current can be told by the needle; otherwise the buzzing sound of the rheostat ceases whenever the current is broken. I think this is extremely important, for if the knife is not hot it must of necessity cause great bleeding.

*Upon What Class of Subjects Should the Operation Be Done?—*First, the very old and feeble are probably best left alone; second, cases of very pronounced cystitis, with purulent infections; third, those in which the kidneys are markedly involved; and fourth, where there is an entire loss of the muscular tone of the bladder walls. It must not be supposed that any of these conditions absolutely contraindicate operation. There are numerous cases reported where the cystitis was very grave, but rapidly improved after the operation. In two cases by Willy Meyer, several by Freudenberg, three by Horwitz, pyelitis was present. Some of these patients were cured, others improved, and a remarkably small number died. Extreme weakness of the vesical wall no doubt forms an objection, but many of the reported cases where a completely atonic condition had been brought about by retention for two, three or four years, were improved by the operation, and in a short time regained complete contractility. Meyer mentions one case in which he found the bladder wall so weak that during a cysto-

scopic examination it was seen folded on itself. In this case there was marked improvement.

I feel convinced that in a certain number of cases the tone of the bladder muscle is so far destroyed that it will not regain its usefulness, but there are so many striking examples where it has rapidly regenerated itself that the chance of its doing so should always be taken. In one of my cases the bladder was extraordinarily distended, containing about sixty-five ounces of fluid, which distension had probably been present for three or four years. Notwithstanding this, it rapidly contracted, and at the end of four weeks the function was almost perfect. In another instance, by the use of the catheter, the bladder would not contract sufficiently to expel the last 300 c. c., which had to be expressed by the hand. At a recent examination I found but little residual urine, and the muscle wall very strong.

What Cases Are Best Suited for the Operation?—Those with complete retention seem to do best, and, strange to say, the ones which had the middle lobe enlarged do not do so well as cases of general enlargement. The hard sclerotic prostates do better than the softer varieties. However, I do not mean to be understood that the other conditions in any way contraindicate the application.

When Should the Operation Be Done?—Just as soon, according to the advice of Freudentberg, as it becomes necessary to turn over the catheter to the patient's own use. Experience has taught us that while a certain number of persons go on for several years in comparative health, they nearly all ultimately succumb to cystitis, and subsequent pyelitis. It is practically impossible to prevent infection, even with the greatest care. It would seem, therefore, best that the operation be done before infection occurs, and I therefore urge it early.

Preparation of the Patient.—It is important where cystitis is present to treat this for two or three weeks by the internal administration of cystogen or salol, and the local irrigation of the bladder, so as to remove infection as far as possible, and to stimulate its contractility. In cases where cystitis is not present, but there is a great distension from residual urine, the catheter should be used twice to three times daily for at least two weeks.

Cystoscopic Examination.—I think this should be made in all cases. By this means we are enabled to discover the projection of the gland into the bladder, and to determine which lobe is most enlarged, and whether a middle one is present. The pouch behind can also be inspected, thus showing approximately the amount of residual urine. The condition of the mucous membrane can be accurately determined, the presence or absence of trabeculae, and a fair idea can sometimes be gained in regard to the tonicity of the wall. The information thus obtained enables us to place our cut corresponding to the projection and enlargement, and, in fact, by this means we can do the operation without working in the dark, as has been sometimes charged. In a certain number of cases

where there is no hypertrophy of the middle lobe, and no definite projection into the bladder, but a general hyperplasia pressing upon and narrowing the lumen of the urethra, the cystoscope, of course, does not aid us very materially, except by showing the absence of distinct projections. As a general rule, it is best to make the examination some days before the operation, for it must of necessity produce a certain degree of inflammation.

Introduction of the Instrument.—The instrument is manipulated in the same manner as the sound. In most cases it can easily be done. Meyer reports a case where he had great difficulty, but finally succeeded in the fourth attempt. Freudentberg mentions one instance where there was such irritation at the vesical neck that he had to wait for three days before the operation could be accomplished.

Placing the Instrument.—This should always be done with the finger resting on the prostate, and according to the evidence gained by the previous examination.

Length of Cuts.—This can be determined by the previous cystoscopic examination, and by the general size and length of the gland as shown by the palpating finger, and the beak of the instrument inside. We judge approximately the distance on the instrument from the meatus to the beginning of the curve, which of necessity is at the internal urethral orifice. The distance from the meatus to the juncture of the urethra and lowest border of the prostate is then subtracted, and gives us a fairly good working basis as to the length of the prostate. Besides, by a little practice, the distance between one's finger and the beak of the instrument can be accurately determined. In long glands the cut should range from 3 to 4 cm.; in the shorter ones, from $1\frac{1}{2}$ to $2\frac{1}{2}$ cm. I have never found it necessary to make a longer cut than $3\frac{1}{2}$ cm. Freudentberg gives 5 cm. as his longest incision, but Willy Meyer has often made it 6. The lateral cuts are usually $\frac{1}{2}$ to 1 cm. shorter. The purpose is to cut through about three-fourths of the gland.

Position of the Cuts.—Bottini at first made only one cut, which was in the middle line. Later, he incised the lateral lobes only. It is now the usual custom to make three cuts, and these seem to give the best results. In a case by Young five cuts were made, and the result was very gratifying. These should always be placed so as to go through the longest diameter of the middle and lateral lobes, and must of necessity vary for each individual case. The average on the sides is made at about 70 degrees, but it ranges from 30 to 120. I very rarely go over 90 degrees, for examinations which I have made at autopsies have led me to conclude that further than this anterior there is danger of cutting through the bladder walls.

Length of Time.—From one to two minutes is the usual time for each centimeter. I have generally proceeded at the rate of one minute and one-half for each centimeter. I think this an important point, for by going slowly the knife is given sufficient time to burn

through; otherwise it plows through the gland and tears the vessels. Another great advantage is that the tissue is charred to a great depth, and will consequently throw off more as it sloughs. In a case reported by Downs, he made his first cut, $3\frac{1}{2}$ cm. in length, in thirty-five seconds, and returned in ten seconds; second cut, 3 cm. in forty seconds, returned in forty-five seconds; third cut, $2\frac{1}{2}$ cm. in twenty-five seconds, returned in thirty seconds. Actual time for the three cuts was one minute and fifty-five seconds, which is thirteen seconds to each centimeter. Notwithstanding this rapid procedure, very little bleeding followed, and he obtained a splendid result. The length of time for return is one minute to the centimeter. In the hard tissue it is well to go more slowly.

How Hot Should the Blade Be?—A bright cherry red, but not a white heat. When it is overheated it cuts like a knife, much more quickly, does not cauterize so deeply, and the vessels are not so thoroughly occluded. From forty to fifty amperes is the proper strength of the current, forty-five being the average. It has been my custom to determine, just before beginning, at what point on the rheostat the blade comes to the proper color. During the operation from five to ten amperes more are used, and in the very sclerotic glands still more current is required.

What Should Be in the Bladder?—Bottini for a long time operated with the bladder empty. He was followed by Freudenberger, who followed the same course, until in one case he cut through the bladder wall, and the patient died. Viertel then used and advised fluid. This offered some difficulty in that the storage batteries were deficient, and it was not possible in all cases to bring the knife to the required heat. In order to overcome this, Lewis inflated the bladder with air. This was objected to by Lewin and Goldschmidt on the ground that air would thus enter the pelvis of the kidney, get into the renal vein, and produce death. In order to find out the truth of this, Lewis made a series of experiments, and concluded that there was no such danger. After this Freudenberger adopted the use of air, and continues to use it. Since the batteries have been improved, and rheostats made for using the street current, no difficulty has been experienced in heating the knife, and normal salt, or borac-acid solution, therefore, is most generally used. This is much better for several reasons. In the first place, it is simpler; second, one can determine more directly and accurately the amount of distension; and third, since both air and water tend to escape during the operation, it goes without saying that the amount of fluid which has escaped can be judged very much better than air. Thus it might be that all the air could escape without our knowledge, and leave us to make the third cut in an empty organ. The chief use of distension is to prevent the cutting of the bladder; and secondly, as is shown by the autopsy in one of Lewis' cases, the orifice of the ureter was so low down that it might have been injured had the organ not been distended.

A NEW COMBINED ELECTRO-CAUTERY INCISOR FOR THE BOTTINI OPERATION FOR PROSTATIC OBSTRUCTION.

By Hugh H. Young, M.D.,

Head of the Department of Genito-Urinary Surgery, Johns Hopkins Hospital Dispensary.

IN Freudenberg's statistics of nearly 800 Bottini operations, after excluding the fatal cases (4.2 per cent.), we find 92 per cent. improved, 55 per cent. cured, 37 per cent. definitely improved, and 8 per cent. failures. Why should there not be a greater uniformity of results? Is the operative technique, or the instrument at fault?

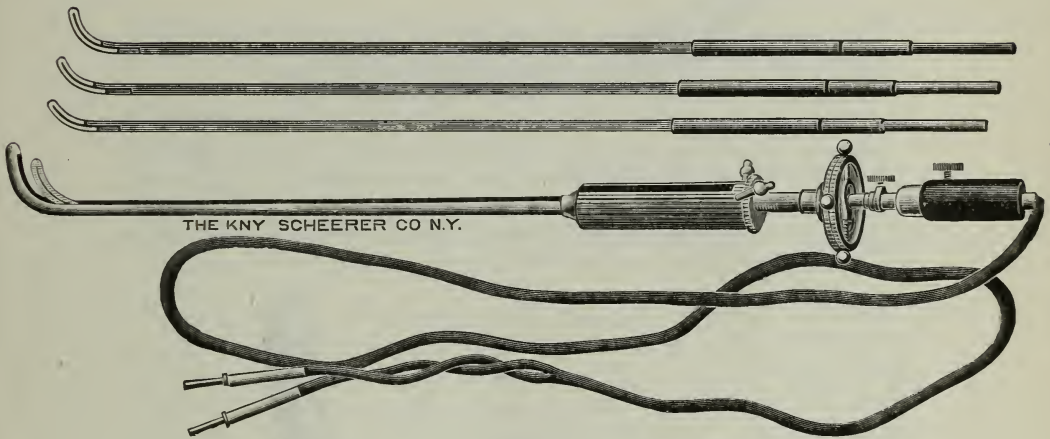


FIG. 1.

Turning to the instrument, we find the one of Freudenberg much preferable to that of Bottini, as has been very frequently pointed out. But there are several very evident weaknesses in even the former instrument. In the first place, since there is the greatest difference as to size, shape, and condition among hypertrophied prostates, it is unreasonable to expect one single cautery blade to be suitable for all. An incision which is sufficiently deep for a medium-sized hypertrophy may be wholly inadequate for a very large one, and positively dangerous for the small fibroid forms. Then, again, one lobe is often very greatly enlarged, while another is only slightly so. Are we, then, to give each the same depth of cautery incision? I have in my collection of autopsy specimens several prostates with small, but very obstructive, middle-lobe enlargements, where the

ordinary Freudenberg and Bottini instruments would have penetrated beyond the capsule, and perhaps into the rectum.

It is very evident, then, that an instrument with several easily interchangeable blades of graded sizes would be a decided improvement.

There are two other defects in Freudenberg's apparatus which, while apparently trivial, are of considerable importance. The first is in the shape of the beak of the instrument as now constructed.

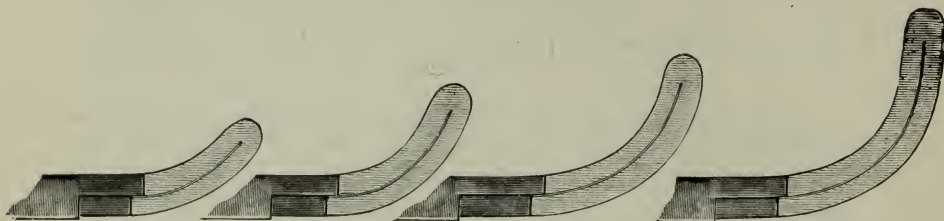


FIG. 2.

The traction necessary to hold the beak up against the prostate during an operation will often pull it into the urethra. This is due to the fact that the beak meets the shaft at such a wide angle or at such a slope (see Fig. 4) that even moderate traction causes it to ride over a median bar, for example, and slip into the prostatic urethra. The dangers of this accident are not small. Indeed, it has occurred several times, and has been responsible for several deaths, the cause being division of the membranous urethra, extravasation, hemorrhage, etc.

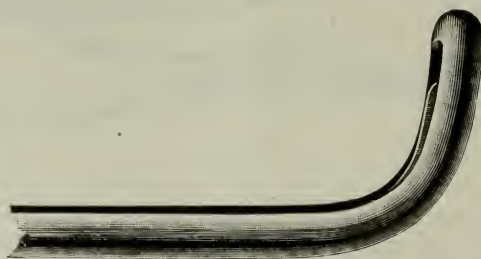


FIG. 3.

The other defect, at times quite disagreeable, was that the handle of the instrument would often become so greatly heated as to burn the hand of the operator, and to prevent sometimes his turning the contact screw to break the electrical current. Examination soon showed that this was due to bad contact.

Recognizing more and more during two years' work with Freudenberg's instrument the drawbacks referred to, and especially feeling the need of blades of different size, the writer finally con-

sulted the Kny-Scheerer Company of New York during April, 1901, with reference to the construction of an instrument which would, if possible, fill all the requirements. After considerable experimentation we have produced, we believe, a satisfactory instrument, the construction of which is thoroughly explained by the accompanying cuts.

As seen in the illustrations, the form of Freudenberg's instrument is adhered to (Fig. 1), the only changes being in its having four interchangeable blades, a beak of different angle, a connecting handle with more extensive contact surfaces, and a few minor changes in construction. By a very simple device, the simple elevation of a sliding-bar on the rotary wheel, one blade may be removed and another inserted. The sliding-bar, working on a spring, holds

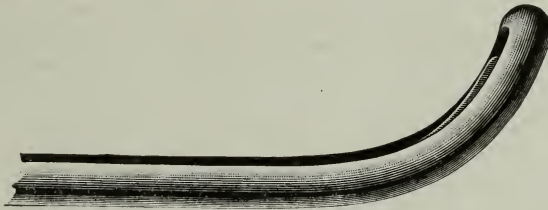


FIG. 4.

the rod containing a blade firmly attached to the screw mechanism by engaging the circular groove near its outer end. We have had four blades constructed as shown in Fig. 2, the smallest having an elevation of .8 cm., the second 1.2 cm., the third 1.7 cm., and the fourth 2.1 cm.

Blade No. 3 corresponds to the one usually found in Freudenberg's instrument, and is the one most generally used, while No. 2 is useful in small hypertrophies, and No. 4 for the very large. Blade No. 1 (the smallest) was constructed mainly to complete the set, and without any idea of much practical value. I have been surprised, however, to find it very useful in several cases, which will be given in detail further on.

The change in the shape of the beak has been of very great comfort. The new beak (Fig. 3) cannot possibly slip by the prostatic orifice into the urethra with all the outward traction which may be put upon the instrument during the operation, whereas with the Freudenberg instrument (Fig. 4) one must be constantly on his guard lest this occur.

These changes have completely done away with the disagreeable overheating of the contact screw, which constantly occurred before, and which was undoubtedly due to insufficient contact, as described above.

During the past seven months I have used this instrument on eighteen cases, and have amply proved it to be practical, and one,

I think, that has overcome many of the defects to be found in Freudenberg's instrument. In most of these eighteen cases blade No. 3 has been used, but in a number of instances the prostate, though causing serious obstruction, was only slightly larger than normal, as shown by rectal instrumental and cystoscopic examinations. In these cases the ordinary Freudenberg blade or our blade No. 3 would probably have penetrated beyond the confines of the prostate, while blade No. 2, which is .5 cm. shorter, was used with safety. Blade No. 1 was also used in two unusually small cases.

In forty-five Bottini operations I have had three deaths, all men in very bad condition before operation, and two with pyonephrosis. Fifteen patients were over seventy years of age, three over eighty, and among these there have been no deaths, and all but one have been cured of the prostatic obstruction. Of thirteen patients who had to use the catheter, there is only one who still requires it, and this one is considerably improved. Some of my cases are of too recent date to show the ultimate results, and these I will reserve for a later publication. I am still, however, of the opinion (from an experience of fifteen prostatectomies) that in certain cases, *e. g.*, men between forty-five and sixty-five, in good condition, and with easily enucleable enlargements, a complete prostatectomy is a very safe operation, and certain as to lasting results, and therefore possibly preferable to the Bottini operation. Time, careful study of cases (especially with the aid of the cystoscope), and long-continued observation after operation can alone determine the applicability and the limitations of these operations for the treatment of prostatic hypertrophy.

In closing the paper I cannot too strongly urge that the Bottini operation should be performed in accordance with the character of the prostatic obstruction as found by thorough examination. There is no doubt but that a perfunctory performance of the operation with one blade for all cases, and one cut directed posteriorly, and one laterally on each side, while perfectly satisfactory in a large number of cases, is insufficient in some and dangerous in others.

UPTON SCOTT, M.D.. OF ANNAPOLIS.

HIS LIFE AND LETTERS.

By Eugene F. Cordell, M.D.

READ BEFORE THE BOOK AND JOURNAL CLUB.

SOMEWHAT over a hundred years ago—to be more exact, on the 3d of June, 1799—there assembled in the historic senate chamber at Annapolis a body of men who were about to make an epoch in the history of Maryland. Important as it was, but little record has been left of that meeting, the first permanent organization of the medical profession of the State; but we may picture to ourselves the doctors gathering from all quarters to the capital, some by stage, some by boat, some by carriage, and some on horseback. There are Henry Stevenson, the prince of inoculators, and courtly Ashton Alexander of Baltimore; the revered Philip Thomas, and John Tyler, the celebrated coucher of cataracts, of Frederick; John Archer, the patriarch of medical graduates, of Harford, and Charles Worthington, “the court physician,” of Georgetown; the Gustavus Browns, the Edinburgh graduates from the southern counties, and Charles Alexander Warfield of Anne Arundel, the impetuous leader in the Peggy Stewart burning, and many others from the Western Shore. Then, there was the Eastern Shore contingent—the gentle Tristram Thomas, with his tall, spare figure, and brusque Ennalls Martin, the “Abernethy” of Talbot; James Moat Anderson, in his sober Methodist garb, and with his limp; James Davidson, the Aberdonian; Edward Worrell, the teacher, and Robert Goldsborough of “Four Square.”

And when this remarkable assemblage of distinguished men were met, I can well imagine that all eyes were turned towards a venerable figure, a recognized leader even among these leaders of men, as the one most suited by character, ability and experience to fill the presidential chair. And although he endeavors to make excuses, pleading his advanced age and its infirmities as disqualifications, his pre-eminent fitness for the place is recognized by all, and he is unanimously elected to the office, the highest honor to which a Maryland physician has been able to aspire within the borders of the State from that day to the present time. And thus under such distinguished auspices our Medical and Chirurgical Faculty was launched on its voyage of usefulness, in which, after more than a century, it continues with ever-increasing zeal, influence, and success.

Upton Scott of Annapolis, to whom allusion has been made, was the son of Mr. Francis Scott of Temple Patrick, near Antrim, Ireland, where he was born in the year 1722. After obtaining a literary

training, probably at the University of Dublin, he began the study of medicine under some physician, as I conjecture, of his native county. It may have been "the honest doctor," to whom he alludes in one of his letters.

His first letter is dated March, 1747, and is from Scotland. It informs us that he has purchased for £60 a surgeon-mate's position in one of the oldest regiments of the British service, that of Lord George Sackville. On the last day of March he reaches Barrowstoneness, where a detachment of five companies of his regiment is stationed, and enters upon his duties. While much pushed for money and "cloathes" to make a genteel appearance, he is well pleased with his surgeon, whom he finds a "discreet man, and one well acquainted in his business," and with his fellow-officers, most of whom were Irishmen like himself.

During the spring he accompanied his regiment to Flanders, and at the close of the campaign, which does not seem to have been productive of any engagement of moment, his regiment went into winter quarters at Breda. The season, as we learn from Sir John Pringle (*Observations on the Diseases of the Army in Camp and Garrison*, London, 1752), was exceedingly unhealthy, malarial fever being so prevalent that some of the English battalions could muster only one-seventh of their men. The regiment returned shortly after to England, as his next letter is dated Folkstone, January 20, 1747/8. He had at this time under care a variety of cases of venereal disease, agues, fluxes, and fevers.

In his relations to his fellow-officers he seems to have displayed great tact, seeking in every way to please and give satisfaction. His small pay gave him much annoyance, and he was continually pinched for means to make a respectable showing. He laid great stress upon the proprieties of speech, deportment, and dress. There is an interesting reference to the home doctor: "I am rejoic'd to hear yt the honest Dr. is still Labouring for the good of his fellow creatures. Our Family and I believe the whole world owe him more obligations yn ever they can have an Opportunity of repaying him."

In February, 1749, his regiment arrived at Glasgow, and he was able to attend the lectures of Professors Hamilton and Cullen for the short remnant of the season. For some years his regiment was now stationed in the Highlands of Scotland, engaged in constructing roads, in patrolling the hills, guarding against thieves and marauders, and preventing the carrying of arms and wearing of the Highland dress. At one time he has "bought a little Horse about three guineas price," for which he is to receive "a shilling p Day to Draw Gravel, besides six pence for forage." At another time he is encamped on the banks of the Dee, forty miles from Aberdeen, the nearest town, surrounded by hills of which one could have no conception, being covered with snow even in the mildest seasons. However, he was happy, with good accommodations and plenty of everything. Thus occupied during the summer months, the regiment

was withdrawn each winter to the lowlands, so that he had an opportunity, which he was quick to seize, to continue his medical studies at Edinburgh and Glasgow, with the design of taking a degree.

April 4, 1753, he writes from the latter city that he is about to stand his final examinations. He has an engagement with Mr. Horatio Sharpe, the new governor of Maryland, to accompany him over to the New World, and is trying to dispose of his commission. He hopes before sailing, however, to obtain from Colonel Wolfe permission to visit his father for a short time "yt I may see you once more before I set out, as God knows if ever it may be in my Power to pay you another Visit." Dr. Scott's diploma is dated April 10, 1753, so that he was evidently successful in these examinations. On August 22 of the same year he informs his father that he has disposed of his commission, and expects to be freed from duty, and ready to sail in a few days. He asks his father to send him a good lad to take to America with him as a servant and hostler. He reached Annapolis during the same summer, and from this time on his professional and business success were assured.

Favored by the patronage of the governor, he became the court physician of the capital, and had a large practice, being called in consultation far into the surrounding country. He also held several important lucrative offices, being appointed sheriff of Anne Arundel county in 1759; secretary of the Governor's Council, 1763; secretary of the upper house of assembly, 1768, and secretary of Governor Eden, the last of the colonial governors of Maryland, 1770.

Shortly after his arrival he married Elizabeth Ross, an heiress with a large estate in the neighboring county of Frederick, now Carroll.

In the midst of so much prosperity he did not forget his friends in Ireland. A letter dated October 16, 1770, evinces his affection and gratitude to his father for all the latter had done for him by enclosing a bill for £60—"my Intention being in the first place to assist you in procuring such conveniencys in Life as you may want and from your increasing Years may not be so able to procure as formerly, after this I shou'd be Glad you wou'd assist my Brother in the Education of his Boys. I have already remitted him Handsomely for this Purpose. I beg you will let my sister Peggy have Ten Guineas. Altho I am very easy in my circumstances these efforts are not made without Difficulty, but as I apprehend them necessary to the Happiness of so near relatives I make them Cheerfully in hopes that the best use has and will be made of them."

This is his last letter to his revered parent, who must have died not long after this. Nevertheless, he continues his benefactions to his relatives from time to time, and having no children of his own, he provided liberally for the education of his nephews, particularly of John Birnie, whom he supported for three years as a medical

student in London and at the University of Edinburgh. An interesting allusion to Baltimore is contained in a letter to this young gentleman of date November 20, 1773: "I have entertained some thoughts that you might possibly make a tolerably decent Livelihood in Baltimore Town, a Place distant from hence about thirty miles, which is increasing very fast in the Number of Inhabitants and in its Trade, particularly with Ireland. Now as many People from Belfast and the North of Ireland have settled there, I apprehend you might be introduced on a respectable Footing there, by getting Letters from some of the Merchants in Belfast who correspond thither, and from Dr. Holliday or Dr. Tier my old Friends, most of whom were well acquainted with your Family; the Difficulties however in succeeding will be considerable, besides those already mentioned, there being several of the Profession already settled there, who are in Possession of the Business, altho none of such Eminence as to be formidable Rivals to a man of real knowledge, accompanied with Application and Discretion."

During the American Revolution he espoused the cause of the mother country, and became a voluntary exile. Some of his letters written during this period from Belfast and London are extant. He is still assisting his family, educating and getting positions for his nephews, and in one of his letters dated London, January 31, 1780, he expresses much concern at the capture of one of them by the Spanish.

It is noticeable that in Dr. Scott's letters during this period of exile, although he was conscientiously opposed to the action of the colonies, he allows no unkind or hostile allusions regarding them to escape even in these private letters to his kinsfolk. This quiet self-control is characteristic of the man whose character strongly reminds us of that of Washington.

On his return to Maryland he seems to have recovered his property, and to have possessed the esteem of the community, as though no differences of opinion had ever existed. According to the late Dr. John Ridout of Annapolis, who knew him personally and has left a short biographical sketch of him, he did not resume the practice of medicine, but "lived in elegant retirement in the discharge of his duties as a good citizen, and in the enjoyment of the respect and confidence of his fellow-citizens."

Some years after his first arrival he had erected a handsome brick residence on an eminence in the southern part of Annapolis, which is still standing. The date of its erection, 1760, is still to be seen cut on the fireplace. It was constructed after the style of an English manor-house, and surrounded by a high brick wall enclosing three acres of ground. He was very fond of horticulture, especially the culture of flowers, and took great delight in superintending the greenhouse and beautiful garden attached to his mansion. "Here, in the exercise of a generous hospitality and surrounded by attached friends, he passed a green old age, and died universally lamented

February 23, 1814, in the ninety-second year of his age." His tombstone is still to be seen, and Dr. Walton has kindly sent me the inscription upon it, which confirms the above figures.

Dr. Scott was a vestryman of St. Anne's parish, and a pewholder in the church. He was also a visitor to St. John's College.

Various relics of him are preserved. Here are his letters, from which I have drawn so largely in the preparation of this brief sketch. There is one other letter of his in the possession of the Maryland Historical Society. It was written in 1809 with the trembling hand of age. It relates to the famous Tuesday Club of Annapolis, founded by Dr. Alexander Hamilton in 1745, of which he was a member. It gives an interesting account of the way in which certain wits of the ancient city sought to amuse themselves in leisure hours. You will note the neatness and care with which his letters are written, and this was characteristic of all he did. In one of them he sharply chides his sister and her son for a badly-directed letter he had received from them, expressing his humiliation in being connected with such a public exhibition of ignorance or carelessness. In another he complains of the expense of postage to which she had put him by forwarding two letters in separate enclosures instead of copying them into her own. Yet this frugality was, as we have seen, not incompatible with a generous and liberal spirit.

Here we have his medicine chest, which I presume is the same that accompanied him in his campaigns in Scotland and Flanders. Here is his diploma from the University of Glasgow. These photographs were taken from a miniature painted on ivory, and doubtless dating from the time of his exile in London (say at about the age of fifty-eight). The miniature, a pair of pistols presented to him by Colonel Wolfe, the hero of Quebec, and a portrait of Dr. Cullen, the gift of that great physician, are all in the possession of the Birnie family of Carroll county. Here is a letter to him from Dr. Cullen, dated Edinburgh, 1773, and it is of interest, as the writer speaks of him as one of his first pupils.

Not only was Dr. Scott careful and systematic in his methods, but his letters show that he was a close observer, and that he took a deep interest in medical progress, frequently ordering new books through his agent in London, and making inquiry of his nephew as to improvements in medicine in the Edinburgh school. These qualities, with his excellent training, his experience, judgment and intelligence, seem to have fitted him in an especial manner for medical research, and we must regard it as a misfortune that he has left no records of such work. He was deeply attached to his friends, and had the happy faculty of retaining their good-will and avoiding offense, yet without the sacrifice of his own opinion and self-respect. And last, but not least, he was a man of the highest honor and integrity, qualities to which, doubtless, he owed in large measure the numerous appointments to positions of profit and distinction which he held.

Current Literature.

PATHOLOGY AND BACTERIOLOGY.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

ON THE RELATIONSHIP BETWEEN HUMAN AND BOVINE TUBERCULOSIS. J. G. Adami. *Philadelphia Medical Journal*, February 22, 1902.

This article consists of the careful and intelligent criticism of a certain group of articles that have recently been exciting considerable attention. Adami has gone carefully over the whole subject of the relation of human to bovine tuberculosis, and has analyzed the literature and the divergent views of different experimenters. A large part of this paper is concerned with a discussion of Koch's recent address, which the author has divided into three parts—(1) a study of the transmissibility of human tuberculosis to cattle; (2) a study of the transmissibility of bovine tuberculosis to man; (3) the conclusions to be drawn from the facts and inferences set forth.

In order to be thoroughly appreciated the paper should be read in the original. Adami deduces the following conclusions from our present knowledge of the subject:

1. Bovine tuberculosis is easily conveyed from cattle to cattle, and, whether by inhalation (the most common method), by the milk (in calves), by contamination of stalls and drinking water through the agency of the saliva and nasal discharge, through the genito-urinary passages, or by intrauterine infection (very rare), this transmission from one animal of the bovine species to another is far and away the commonest mode of infection in cattle—so common that *for practical purposes* all other modes may be neglected.

2. Human tuberculosis is transmissible to cattle. Pure cultures of these bacilli rarely cause infection. Mixtures of tubercle bacilli with other micro-organisms (as in sputum) appear to be more infectious. The difficulty in inducing artificial tuberculosis favors the idea that natural infection of cattle with human tubercle bacilli must be of singularly rare occurrence.

3. Swine appear to be fairly easily infected with both human and bovine tubercle bacilli, and when infected with the former, these gain an increased virulence for guinea-pigs and rabbits. But while, through the use of infected milk, these animals become frequently infected from cattle, conditions favoring the reverse process are rare. Thus, while it may occasionally be that swine, or possibly other domestic animals, act as intermediaries in the passage of tuberculosis from human beings to cattle, the conditions favoring such transmission from man to the hog, or from the hog to cattle,

so rarely show themselves, that again, for practical purposes, this mode of infection may be neglected.

4. If this be so, it should be possible to eradicate bovine tuberculosis in a region in which human tuberculosis continues to be widespread.

5. Human tuberculosis, in the majority of cases, is conveyed from human being to human being by inhalation; more rarely it is conveyed through the alimentary tract; still more rarely through the genital tract, through surface wounds, and from the mother to the fetus during intrauterine life.

6. Everything points to the fact that, in the main, the bacilli causing infection in man are derived from previous cases of the disease in man.

7. By sojourn in the human body and passage from man to man the human tubercle bacilli have acquired properties differing from those acquired by bacilli which have passed through cattle. Their shape differs; the rate of growth and the appearance of the growths outside the body are different; their virulence toward the animals of the laboratory is also different.

8. These differences are not, however, sufficiently marked or constant enough to permit us to conclude that we are dealing with distinct species. On the contrary, the evidence at our disposal points clearly to the fact that in the different species of animals we encounter, at most, *races* of tubercle bacilli, which by growth in the bodies of animals of another species take on the characteristics of the race of bacilli peculiar to that species.

9. Bovine tuberculosis can be transmitted to man, and this either through wounds or through the digestive tracts.

10. By passage through cattle the tubercle bacillus gains increased virulence for cattle, rabbits, and guinea-pigs, but lessened virulence for man and (it would seem also) for carnivorous animals.

11. Save in the very rare cases of wound infection, there is a significant lack of evidence that bovine tubercle bacilli infect adult human beings.

12. It is infants and those of early age who are liable to be infected by the tubercle bacilli of bovine origin, and this through the agency of milk. The statistics bearing upon the continued frequency of tuberculosis in children and upon the relative frequency of intestinal and abdominal tuberculosis in children must be accepted as conclusive evidence upon this point.

13. Even with children a consideration of the great frequency of bovine tuberculosis in certain regions and of the absence of any record of tuberculosis affecting those supplied from a given "milk-round" leads to the conclusion that the bovine bacilli have not heightened virulence.

14. The few positive records we possess of direct transmission of tuberculosis from cattle to man through the agency of milk indi-

cate that infection is brought about only by the employment of milk of cattle which are very extensively diseased, more especially of those suffering from udder disease. Such milk contains enormous numbers of bacilli. In other words, large numbers of tubercle bacilli are required in order to infect human beings with bovine tuberculosis. This again is an indication that the bacillus cannot be regarded as having gained a heightened virulence for man, and that infection is not very readily communicated.

15. Animals showing physical signs of tuberculosis (for mild grades of the disease afford no physical signs), and, above all, those exhibiting udder tuberculosis, should therefore be condemned, and under no conditions should their milk be used for food.

16. Where there is tuberculosis in a herd, Bang's method should be employed, the animals reacting to tuberculin being separated from the healthy ones. The milk from the reacting animals, for whatever purpose used, should be pasteurized so as to effectively destroy the tubercle bacilli.

17. The great cause of infantile mortality is inflammation of the stomach and intestines (gastro-enteritis and diarrhea), and this is proved to be mainly brought about by the use of badly-kept and fermenting milk. Wholly apart, therefore, from the question of tuberculosis, it is imperatively necessary that greater care should be exercised by all concerned in the distribution of milk. The general measures taken to lessen this, the greatest scourge of childhood (prohibition of use of milk from cattle showing *any* form of sickness, pasteurization of milk, etc.), will equally lessen the danger of the transmission of tuberculosis from cattle to man.

* * *

THE ETIOLOGY OF YELLOW FEVER—A SUPPLEMENTAL NOTE. Reed and Carroll. *American Medicine*, February 22, 1902.

In former contributions to this subject the authors have shown that the specific agent of yellow fever is in the blood, although the nature of this agent is still unknown. The experiments of Loeffler and Frosch relative to the etiology of foot and mouth disease in cattle led Carroll and Reed to attempt similar experiments in yellow fever.

Loeffler and Frosch showed that calves which had received one-tenth to one-fortieth cubic centimeters of the diluted and *filtered* lymph which had been collected from the blebs present in the mouth and foot disease developed the disease just as promptly as calves that had been injected with corresponding quantities of the *unfiltered* lymph.

According to Loeffler and Frosch, there were two possible explanations of this remarkable result—either that the filtered lymph held in solution an extraordinary active toxin, or that the specific agent of the disease was so minute as to pass through the pores of a filter which prevents the passage of the smallest known bacteria.

The authors, from further experiments, accepted the latter explanation.

It was for the purpose of ascertaining whether observations conducted along the same lines as those above mentioned might throw additional light upon the etiology of yellow fever that the experiments detailed in this paper were undertaken.

Cases of yellow fever were produced by the bites of infected mosquitoes. In all, six non-immunes were bitten. Four gave a negative, and two a positive result. Of the positive cases we will refer to Case II, as it was the blood from this individual which was used for experimentation. On the third day of illness sixty-five cubic centimeters of blood were drawn from a vein at the bend of the elbow. This was placed in a sterile test-tube and set aside in the refrigerator. Five and one-half hours later nineteen cubic centimeters of a slightly blood-stained serum were pipetted off into another sterile tube. After the addition of an equal quantity of sterilized distilled water, the diluted serum was slowly filtered through a new Berkefeld filter. The original level of the blood having been marked upon the tube, enough distilled water was added to make up the original volume of blood. This was then whipped up with a sterilized egg-beater. The mixture, representing the partially defibrinated blood, was divided into two parts, one of which was reserved for the inoculation of a control subject, while the other was exposed to a heat of 55 degrees C. for ten minutes. Consequently, three kinds of material derived from Case II were used—(a) the unheated and partially defibrinated blood; (b) the partially defibrinated blood heated to 55 degrees C., and (c) the diluted blood serum which had been filtered through a Berkefeld filter. Each of these materials was used for the inoculation of one or more non-immune individuals, with the following results:

(a) *The unheated and partially defibrinated blood.* Case III.—Five days following inoculation patient began to show symptoms, and ran a typical course of yellow fever, thereby showing that the blood drawn from Case II contained the specific germ of yellow fever.

(b) *The partially defibrinated blood heated to 55 degrees C. for ten minutes.* Three cases (IV, V and VI), all non-immunes, inoculated with this material, failed to develop yellow fever. Since under these circumstances, each of the three non-immunes, received, without any disturbance to health, double the quantity of *heated* material that sufficed when *unheated* to cause an attack of yellow fever in Case III, it follows that the specific agent present in the blood in yellow fever is destroyed, or at least markedly attenuated, by a temperature of 55 degrees C. maintained for ten minutes.

(c) *The diluted and filtered serum.* Three non-immunes were inoculated with three cubic centimeters of the filtered serum. Two developed typical yellow fever; in one the result was negative.

The production of typical yellow fever by the injection of blood serum that had previously been passed through a filter might be explained in one of two ways, namely, first, upon the supposition that the serum filtrate contains a toxin of considerable potency, or secondly, that the specific agent of yellow fever is of such minute size as to pass through the pores of a Berkefeld filter. Further experimentation led the authors to incline towards the latter view, although they assert that the entire question must be left for future observations to determine.

* * *

STUDIES OF EPIDEMIC DYSENTERY IN JAPAN, WITH SPECIAL REFERENCE TO *BACILLUS DYSENTERIAE*. H. Shiga. *Deutsche med. Wochenschr.*, Nos. 43-45.

Shiga gives a detailed account of the *B. Dysenteriae* found by him in 1897. These bacilli are small, plump rods, similar to the coli group, mostly single, seldom in pairs, slightly motile, easily stained (but not by Gram's method), and form no spores; grow best in acid media, and at 37 degrees C. are facultative anaerobic; do not liquefy gelatine; no fermentation in glucose media; in bouillon cloudy, with sediment. On gelatine plate the bacilli form round, sharply-marked-off colonies of brown-yellow color. The bacillus dysenteriae is destroyed by 0.5 per cent. carbolic acid within six hours; in 1 per cent., within thirty minutes; in 1-20,000 sublimate solution, at once. Dried in the air they retain their vitality for several days.

In dysenteric patients the bacilli are found in almost pure cultures in the fresh dejections in the second half of the first week. The higher in the intestinal canal the disease is situated, the more difficult to isolate them. When the stools become purulent the number of bacilli decrease. They are found in large numbers in the mucous membrane of the intestine, and especially at the seat of ulceration. Shiga found them also in the enlarged mesenteric glands; never, however, in the liver, spleen, urine, blood or milk.

The Gruber-Widal reaction runs parallel with the intensity of the disease. The serum was positive at times in dilutions of 1:130, oftener in 1:20-50. In mild dysentery it was seldom less than 1:10. The reaction of normal blood, or of the blood in other diseases than dysentery, was always negative. In dysentery the agglutinin appears in the second or third week, reaches its height in convalescence, and then gradually diminishes. The reaction has less diagnostic than prognostic importance. Early appearance of the reaction indicates a favorable prognosis. A delayed reaction indicates a chronic course.

For bacteriological diagnosis of dysentery cultures are made upon agar from the thin, slimy dejections. After twenty-four hours colonies have developed, and the following tests should be tried: 1. Agglutination with specific serum, diluted 1:30-50; 2. Growth in glucose-agar; 3. Growth in milk. If agglutination appears at

once, and no fermentation occurs in the agar, and the milk is not coagulated, it is the bacillus of dysentery. The bacillus is distinguishable from the *B. Typhosus* only by its less motility and the specific agglutination test.

Shiga experimented with the serum both in animals and with patients sick with the disease. Animals which received 1.0 immunization serum 5-15 hours after the infection, recovered, whereas injections twenty hours after infection failed to save the animals.

The result of the serum treatment of 510 patients with dysentery shows that when used early, recovery rapidly follows.

For prognosis the chief point is the situation of the lesion in the intestinal tract. If the lesions are limited to the rectum or sigmoid flexure, the prognosis is good. If, however, the transverse or ascending colon or small intestine is involved, the prognosis is unfavorable. The higher the lesion in the intestine the more unfavorable the prognosis.

In Japan dysentery has been epidemic for the past twenty years. The infection occurs *per os*.

Shiga has shown that the bacillus of dysentery of both Kruse and of Flexner are probably identical with the one described by him.

REVIEW IN HYGIENE.

Under the Supervision of Robert Reuling, M.D., Baltimore.

STUDIES IN RELATION TO MALARIA. George H. F. Nutall and Arthur E. Shipley. *The Journal of Hygiene*, Vol. I, No. 1.

The present interest in the more careful study of the life history and breeding-places of the mosquito is certainly warranted when we are now fully convinced of the great importance this insect bears to the propagation of certain infectious diseases, malaria and yellow fever being so far most clearly associated with it. Those interested in the subject should avail themselves of the excellent series of articles appearing in the *Journal of Hygiene*; they are continued through several numbers. These articles are accompanied by excellent drawings, which help greatly in making clear the anatomy of the adult and larval stage, and the various changes accompanying the latter. Unfortunately, only a short general review of Nutall's and Shipley's articles can be given, but the reviewer hopes to be able to interest the reader by presenting him with the more important parts of the subject.

The Structure and Biology of Anopheles (Anopheles masculipennis)—*The Egg and Larvae*.—The importance of malaria as a disease affecting vast numbers of the human race renders it essential

that we should study most completely all that affects the etiology of the disease. Through the brilliant researches of Ross, Grassi, Bignami, and Bastianelli and others we know that several species of anopheles serve as definitive hosts of human malarial parasites, and that when these insects are infected they are capable of communicating the parasite to man. As far as evidence goes, these insects appear to be the only means by which the disease is spread. The sexually-mature parasites circulating in man's blood gain access to the insect when it feeds upon this fluid. After a period of seven or eight days, under suitable conditions of temperature, the parasites appear in the insects' saliva, and when this occurs the latter is capable of producing infection by the act of biting. The highly interesting literature on this subject has been considered elsewhere by one of the authors, as also by Luhe, and the reader is referred to these publications for particulars.

Other parasites besides malaria have recently been found to undergo their development in species of anopheles. In 1878 Manson first observed the development of filaria Bancrofti in a species of culex, and this observation has been confirmed by others. Recently Low (1900) observed that the matured filariae issued from the proboscis of culex ciliaris, and James (1900) proved that this parasite develops in anopheles Rossii as in culex microannulatus and culex albopunctatus skuse. Finally, Grassi and Noe claim to have observed a similar development of a canine parasite, the filaria vininitis, in anopheles maculipennis. Manson (September, 1900) obtained anopheles from Rome through Bignami and Bastianelli, these investigators having infected them with benign tertian parasites. The insects arrived in London after a journey of forty-eight hours. Dr. Manson's son, Mr. Thorburn Manson, allowed himself to be bitten by the infected insects. Mr. Manson developed tertian malaria.

Of forty-two well-identified species of anopheles, eight or more have been proved to serve as hosts of the malarial parasite. These three species are known in England as anopheles maculipennis, anopheles bifurcatus, and anopheles nigripes. Of the three, the first, as will be seen from perusal of the preceding paper, is by far the most common, as it is also the most common and widespread species upon the European continent. For this reason it seems eminently desirable to give a careful and detailed description of this species, all of which probably play a similar part in the propagation of malaria.

Historical Note.—The first mention of anopheles which we have found in literature is that of Joblot of Paris, 1754, who describes the larvae as rare. Since that time the larvae have been found by many other observers in water, and frequently mistaken for other forms of insects. The only valuable and correct descriptions of the various stages in the evolution of anopheles have been published by Grassi and Havard in 1900.

The Ovum.—When first deposited the eggs are white, but they soon darken. Each ovum measures .7 to 1 mm. in length, and is at its greatest breadth about .16 mm. broad. The egg is boat-shaped, and one end is slightly deeper and fuller than the other. The surface, which, were the egg a boat, would be the upper, is flattened, but slightly convex. It is marked by minute reticulations. The rim of the boat is thickened, and very regularly ribbed. This thickening recalls the rounded float which runs along the edge of a lifeboat. It serves the same purpose, being composed of air chambers, and is used to keep the boat-shaped egg with its flat surface uppermost. The color of the egg is grayish-black. One end is slightly blunter and more rounded than the other, and this contains the head of the embryo. According to Grassi, the female deposits about 100 eggs upon the water. The eggs are laid upon water suitable for the development of the larvae, that is, usually water rich in vegetable matter, such as algae. On the second or third day after oviposition (this depends upon the temperature) the young larva leaves the egg and commences to swim in the water. The egg hatches by a circular split near the blunt end of the capsule. According to Christophers and Stephens, the eggs of anopheles will hatch after being dried for twenty-four to forty-eight hours on blotting paper, but that no larva issues when more than forty-eight hours had elapsed. Tests made with earth taken from twenty-five pools gave a negative result.

The Larvae.—The body of the larva is divided into three regions—(1) the head, (2) the thorax, (3) the abdomen. The segments of the thorax are much fused together, but still traces of a division into three are not wanting. The abdomen may be divided into nine segments. The first seven of these exhibit but slight and gradual change of form, the eighth is rendered conspicuous by carrying on its dorsal surface the stigmatic apparatus, and the tenth is equally conspicuous.

The Head of the Larva.—The head of the larva is much more rounded than is usually represented; it is covered with a very complete and clearly-defined chitinous case. The chitinous cover is brown, lighter where there are joints, *e. g.*, at the insertion of the antennae, and darker where the chitin is thickened, *e. g.*, at the bases of some of the appendages.

The eyes are situated quite laterally, and seem to be of two kinds—one is compact, and more or less circular in outline; the other, which is only in the older larvae, is a cycle-shaped body, compounded of isolated ommatidia. These lie above and a little in front of the rounded eye, and it would seem that they are beneath the transparent cuticle, and are, in fact, the primordia of the adult eye.

In front of the eye, at about the same horizontal level, is an eminence which carries the antennae, and this eminence is partly caused by a slight, but deepening, groove, which runs in front of the eye,

and helps to mark off a central area of the upper surface of the head on the dorsal surface, and this bears six symmetrically-placed feathered hairs, which project forward over the head. At each corner of the dorsal chitinous end of the head is placed a conspicuous branched hair, which exactly overhangs the brushes, shortly to be described. In the middle line, or, rather, close to it, two simple pointed hairs, slightly frayed at their free ends, project forward. Grassi has drawn attention to the fact that these branched hairs at the corner, and the two simple or slightly frayed hairs near the middle, are of specific importance, and has given figures showing the differences which exist in *A. claviger*, *A. pseudopictus*, *A. bifurcatus*, etc. There are other smaller hairs on the head, but those mentioned are the most conspicuous. The anterior end of the head carries on each side of it a very conspicuous bunch of stout brown hairs, which have some sort of spiral arrangement, and are slightly curved. The hairs are as closely aggregated as those of a shaving brush. Between the bases of the two brushes is a smaller bunch of hairs, and ventrally there are two semicircles of hair, all above and in front, and converging toward the mouth. These hairs are moved by comparatively strong muscles.

The Appendages of the Head.—The only appendages borne by the larva of anopheles are those of the head, though possible the larger hairs of the thorax may correspond in position with the future legs. The head appendages are paired, and consist of (1) antennae, (2) mandibles, and (3) maxillae.

The antennae may be described as two-jointed, though the first joint, which is quite short, seems immovably fixed to the chitinous covering of the head. The second joint is elongated, movable, and provided with a few spines. Its free end is truncated, and bears two large spines slightly curved.

The mandibles consist of one joint, forming the side of the mouth, which is floored by the maxillae. Each mandible is a stout piece articulating by a broad base with the under part of the head. Its free anterior border bears, passing from without inwards, the following structures: Most externally three, sometimes four, strong cycle-shaped hairs, which, in a position of rest, often touch the posterior outer angle of the brushes of hairs, and so help to form a kind of sieve to entangle any particles of food which may be approaching the mouth. These hairs are sometimes run through the brushes, and serve to clean and arrange them. More internally the mandible is provided with five or six stout chewing teeth, which, judging from their color, must be strongly chitinized. The teeth working against those of the opposite mandible are the only crushing apparatus the larva possesses.

Method of Feeding of the Larva.—Whilst feeding at the surface, which seems to be the chief occupation of the larva, the head is reversed, so that the ventral surface lies uppermost, the body retain-

ing its normal position. The mouth parts begin to vibrate backward and forward, and the brushes are bent rapidly downwards, backwards, and inwards. When at rest the outer end of the curved moustache is almost touched by the free end of the maxillary palp. This organ helps thus to form the sides of a space at the bottom or posterior end of which the mouth lies. The walls of this chamber are completed by the mandibles. When the larva is feeding the brushes are suddenly bent back into this space, the mandibles and maxillae moving forwards to meet them, and at the same time opening out: they are then suddenly released, and fly back to their original position. This movement of sudden bending and swift relaxation is repeated with great rapidity, often some 180 times a minute, producing a current sweeping in convergent curves towards the above-mentioned cavity. The water filters out on each side, but any particle of food is retained by the fine hairs borne by the mouth appendages. The food of the larva seems to consist in the main of spores of fresh-water algae, particles of spirogyra, diatoms, and any other minute organisms which do not penetrate the surface film.

The Thorax.—The thoracic region in the older larvae is broader than the head, and broader than the succeeding segments, which taper very slightly. On each side of the middle dorsal line of the anterior rim of the thorax is a line of three-feathered hairs, increasing in their size from within outwards, and spread forward, overhanging the head. On the ventro-lateral border on the same edge emerge on each side a pair of large-feathered hairs, sometimes double from the base. These resemble the dorsal hairs, and also those which are now to be described.

A very little way behind this row of hairs come on each side of the prothorax two hairs usually feathered. These are distinctly lateral in position, and are almost always directed forward, even when the first and third rows are standing out at right angles to the body. This second row of four hairs is not so conspicuous as the others, and do not seem to conform to the same series, but for this they might be looked upon as the bristles of the mesothorax. At a greater distance than separates row 1 from row 2 comes row 3, which is, in fact, near the posterior edge of the thorax. This consists of a row of four feathered hairs, projecting, as a rule, forward, though often outward.

(*To be continued.*)

* * *

ON THE PROTECTIVE SUBSTANCE OF IMMUNE SERA. E. W. Ainsley Walker. *The Journal of Hygiene*, Vol. II, N. I.

The author's investigations are especially confined to the solution of Ehrlich's theories on immunity, more especially the study of the addiments of certain sera.

In all of his experiments he used 48-hour cultures of a given variety of the bacillus typhosus on agar. For injection the agar surface was washed with a known volume of ordinary culture bouillon and emulsified by shaking. The dose to be administered was measured volumetrically. The weights of the guinea-pigs was always considered. The immune serum used throughout was the antityphoid serum of Tavel obtained from horses.

It may be well here to give a short review of the theory of the specialism of the addiment.

It has been pointed out by Ehrlich, Wassermann, and others that if the amount of immune serum necessary to protect an animal of given weight against a single minimum lethal dose (M. L. D.) of a given bacterium be determined, and a similar animal be now injected with three times the M. L. D., it will die, not being sufficiently protected by the quantity of immune serum given.

Moreover, Roux and Vaillard had shown for tetanus, what has been fully confirmed for other infections also, that an infected animal treated with immune serum may rapidly die of the disease in question, although it has been given such an amount of serum as to render its body fluids capable of protecting other animals against infection by the same bacterium. That is to say, in general, that if an animal receives more than a certain maximum dose of an infecting agent, it will die, whatever the quantity of the immune serum that is employed in the endeavor to protect it. And seeing that in this second-type experiment the immune body is obviously present in sufficient quantity—since the fluids of the dead animal can protect another animal—Ehrlich attributed the phenomena observed in these experiments to a deficiency of the addiment. Ehrlich also comes to the conclusion that a foreign addiment is useless to the animal injected. In other words, that an animal can only make use of its own addiment, which is limited in amount, or of that of other animals of its own species; in fact, that addiment is special to the species.

Exceptions might exist, however, to this rule, and certain species of animals might possess addiments acceptable to certain other species.

From Walker's experiment it seems quite certain that in the ordinary antitoxic and antibacterial sera the addiment is absent. He found, for instance, that freshly-won serum of three different animals examined, the rabbit, ox, and hog, could all supply the missing addiment for guinea-pigs, and this addiment is satisfactory to the immune body of the immune serum of the horse. But if these sera obtained from the three animals were kept for some days in the ice-chest, the results on animals showed that addiment was markedly destroyed.

The following table of experiments will show the difference in

the results when fresh serum is added. The table also shows that the animal dies if an insufficient amount of serum (addiment) is given:

Experiment (a).

Guinea-pig 4 received 10 M. L. D. and 28 serum units of immune serum, and 1 c. c. *fresh* ox serum per 100 grms. Died in twenty to twenty-four hours.

Guinea-pig 5 received 10 M. L. D. and 28 serum units, and 2 c. c. *fresh* ox serum per 100 grms. Recovered.

Guinea-pig 6 received 10 M. L. D. and 28 serum units of immune serum, and 1 c. c. *fresh* pig serum per 100 grms. Result—Died in twenty-six to twenty-eight hours.

Guinea-pig 7 received 10 M. L. D. and 28 serum units of immune serum, and 2 c. c. *fresh* pig serum per 100 grms. Result—Recovered.

Experiment (a), therefore, shows the favorable outcome when a sufficient quantity of *fresh* serum is added to supply the necessary addiment after given ten times the maximum lethal dose to guinea-pigs.

Experiment (b) will show the result when *old sera* of various animals are used:

Experiment (b).

Guinea-pig 2 received 10 M. L. D. and 28 serum units immune serum, and 2 c. c. *old* rabbit serum per 100 grms. Result—Died.

Guinea-pig 3 received 10 M. L. D. and 28 serum units of immune serum, and 3 c. c. *old* rabbit serum per 100 grms. Result—Died.

Guinea-pig 4 received 10 M. L. D. and 28 serum units of immune serum, and 2 c. c. *old* ox serum per 100 grms. Result—Died.

Guinea-pig 5 received 10 M. L. D. and 28 serum units of immune serum, and 3 c. c. *old* ox serum per 100 grms. Result—Died.

Guinea-pig 6 received 10 M. L. D. and 28 serum units of immune serum, and 2 c. c. *old* pig serum per 100 grms. Result—Died.

Guinea-pig 7 received 10 M. L. D. and 28 serum units, and 3 c. c. *old* pig serum per 100 grms. Result—Died.

Society Reports.

BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.

MEETING HELD JANUARY 27, 1902.

THE meeting was called to order by the president of the association, Dr. J. L. Ingle, at 8.30 P. M.

Dr. W. S. Gardner: "Two Cases of Extrauterine Pregnancy."

This large specimen here is from a patient of Dr. Chambers. The woman menstruated last in September, 1900, and she came into the hospital in July. She had been seen before that time, I believe, by Dr. Chambers—I think in February. It was one of those cases in which there is no question as to whether there is pregnancy or not, the only question being as to whether the pregnancy was uterine or extrauterine. There were no fetal movements, and no indication of fetal life. She had been complaining of pain and discomfort, and had been losing weight. Her general condition was bad, and getting worse constantly, and she had at that time a temperature of between 102° and 103° . She had a marked amount of pain in the right iliac region—so much so that one of the physicians had thought of appendicitis, and considered the temperature she had due to that. The first time I saw her was a day or two afterwards, and on external examination was unable to make out anything clearly, except that she was a woman with something in her abdomen that ought not to be there. You could make out that the cervix was very soft, but just where the uterus was, or where the tumor was, if one existed, was not at all clear, but from the condition of things we thought it hardly possible for there to be a fetus in the uterus. After a few days we opened up the cervix to see if it was a dead fetus, and, if so, to empty the uterus, but even with examination under anesthesia we could not outline the uterus at all. Upon dilatation we could get up into the uterine cavity a short distance, and apparently into a *cul-de-sac*. It was not easy to tell even then whether it was the fundus of the uterus or not on account of the dense adhesions about the uterus. I could make out a definite tumor over the left side, and another low down in the pelvis on the right side. I thought we could open up the *cul-de-sac*, and in doing so I brought out a piece of tissue, which was placental. Then we came to the conclusion that it was an extrauterine pregnancy that had gone nearly to full term. This specimen is what was taken out, and is the broad ligament with the developed fetus in it. The membranes were turned over the abdominal wall, and were opened when the abdominal incision was made. It had ruptured down into the broad ligament and there developed. Here is the after-birth from the same case. The fetus is the tumor that was felt over in the left side of the pelvis. The fetus was extracted, and then the placenta removed by ligating the broad ligament in sections, as is ordinarily done, and, as we had opened into the posterior *cul-de-sac*, that cavity was packed, and a large piece of gauze brought out, and another piece through the lower abdominal wall. She

made a slow, but very excellent, recovery. She was never sick at any time after the operation. The fetus is probably about seven months; just how long it was dead before delivery is not definitely known.

This second specimen is one of which we could not get a very good history, because the woman could not speak any language that any of us could understand. My attention was called to her in the ward by Dr. Harrison, who said that the case had been called to his attention, with the diagnosis of appendicitis, and that he had looked her over, and was satisfied that she did not have appendicitis. The only menstrual history we could get was that she had not menstruated for seven weeks up to the time we saw her. So far as we could learn she menstruated fairly regularly up to that time. She suffered a great deal of pain in the right iliac region, was not having any temperature of any amount, but was in a very depressed condition. It was during the very hot weather of July and August. We examined her at first in the bed, and could feel the uterus, and to the right of it a very large mass. But even at that time we were not satisfied as to just what the condition was. The mass was near the uterus, and systic in character. We opened up the *cul-de-sac*, and got a stream of blood and some clots. Then we knew it was not pus, but probably an extrauterine pregnancy. We packed the cavity with gauze, and then opened the abdomen. This mass filled up the whole of the right side of the cavity. The uterus was retroverted and densely adherent, and the broad ligament and ovary of the other side were adherent to the posterior wall of the pelvis, so that to get the mass up was very difficult, and it bled from every point touched. We finally got it broken up posteriorly, got the left side separated, and then got this posterior side of the broad ligament separated. I tried at first to separate this distended broad ligament from the uterus, but found the adhesions so close and the surface so large that it was not practical, and the only thing we could do was to cut down on the other side of the uterus and get it off from the side. This is the uterus, and here the broad ligament, with the fetus still in it, as it has never been removed. It shows a development of three and one-half or four months, instead of seven weeks, as would have been expected from the history of the menstrual periods.

The patient had lost a good deal of blood before the operation was finished. She was in a weak condition before the operation was begun, and so when put to bed she was in a bad condition. She apparently rallied under salt solution and strychnia, but at the end of twenty-four hours she collapsed and died. These two cases are of interest, because they are ruptures into the broad ligament, with development there after the rupture, a condition of things that is not very common.

Dr. Chambers: The history of the patient the first time I saw her in February was that along in December she had been taken suddenly ill with intense pain and considerable collapse, and the doctors thought she was going to die. After some restoratives, the pains ceased, but there was considerable fever for three weeks, with pain in the right side. There had been some irregular menstruation, but no history of miscarriages. Her physician had not examined her after her reaction from what I thought was probably a case of appendicitis. In February she had a well-marked tumor in the abdomen, and I thought I fairly well made out the form of the body, and she at that time spoke of movements also. I also made out

the fetal heart-beat. I made a note that while she was a fairly well-developed woman, the baby seemed to be superficial. I made out that it was a thin uterus, but did not give a thought to extrauterine pregnancy at that time. I did not hear from the case again until in June, when she came up to Baltimore on one of the river boats, and then I found that her abdomen was not as large as it had been in February. I still thought her pregnant, though she said she had felt no fetal movements for eight or ten days. Her doctor made the statement that about ten days ago she was taken with what he thought to be labor pains, which continued for two days and then suddenly ceased, and she became quite ill, with a temperature of $101-2^{\circ}$, and he could not account for the condition. I examined her in the stateroom on the boat, and suggested that it might be a dead fetus in utero. The neck of the uterus was not as soft nor as large as I expected to find it. A little later I had a note that she was no better, but had no further labor pains. She came into the hospital, and then we had the history as Dr. Gardner has given it to you. Now, the probability is that the first attack in September, which was thought to be appendicitis, was the rupture into the broad ligament, and that it developed there along until February, and then probably the death of the fetus occurred at about nine months. If you will observe the baby you will see that it looks to be about nine months old. From the time she ceased to menstruate in September until the middle of June, when she was sick for several days, was about nine months.

Dr. Harry Friedenwald: (a) Tubercular Iritis.—This first patient was seen by me in April, 1898. He was a little boy, apparently about ten or twelve years old, but he gave his age as sixteen. He was very much undeveloped. When he came to the hospital he had a very marked iritis in both eyes. Both irides were bound down, and no amount of atropia could break up the adhesions. In the one eye only were tubercles seen. There were four tubercles, little gray elevations, very sharply defined, and when looked at with the glass were seen to be very clear, round elevations. This boy, when further examined, showed bone tuberculosis in a very advanced stage. His thorax and back were covered with large scars and deep fistulae, out of which there was a discharge of pus, and with the probe you could feel dead bone here and there. In the fall, when he came back to the hospital, an iridectomy was done in one eye, and a bit of the iris implanted into the anterior chamber of a rabbit's eye. But the iridectomy was not a very satisfactory one, as you could not get hold of the iris; it was so mushy, and had no firmness. The result of the experiment with the rabbit was negative. The boy was seen again after a period of at least a year. The tubercles disappeared and the iritis disappeared, but the irides were bound down firmly, and his vision is very bad. The point I want to bring out in this case is that the condition never progressed, as it does in the severe forms, to phthisis bulbi, but that the tubercular deposit really disappeared.

The second case that I wish to describe is here before you. This young man came into the hospital with an eruption over the face and over the body which was regarded as syphilitic. While here he complained to the resident one day that his vision had been bad for about a week. When I examined him on the 15th of January I found the vision of both eyes very

much reduced. The eyeballs were not congested at all, but were as white as now. Both irides were bound down with a thick deposit in the pupils. Atropine was used, and one pupil dilated. The right pupil had a dense deposit of lymph in the pupil; the entire pupil was covered, but it was denser in the area around the pupillary edge, and in the iris there were these little gray elevations. On the cornea there were likewise two deposits. In the left eye the pupil dilated. There is a ring here showing where the iris had been bound down, and a fine deposit over the rest of the pupil. In this eye there were fewer tubercles, and one larger deposit on the cornea. He was then under specific treatment, and was very weak. He was examined repeatedly for tuberculosis, but no trace of the disease could be found. There was no evidence in the sputum nor in the physical examination of tuberculosis. Yet, while there was absence of these signs, and every evidence of syphilis, there could be no doubt of the diagnosis of many lesion somewhere from which these secondary conditions have arisen.* The man also has very extensive changes in the retina. These tubercles in the iris can be readily demonstrated.

(b) *Ophthalmoplegia in a Child One and One-half Years Old.*—This child is one and one-half years old, and has been healthy, with the exception of "a cold," contracted in December. The child was given some medicine, of which I shall speak later, and one day the condition which I now point out to you was observed.

Both upper eyelids are parietic. The child can raise the right one fairly well, but not completely. This is about as far as the child can open the lids. It cannot move either eye upward. If the attempt is made to raise the eyes to look at something above the level of the horizontal, it throws the head back. The downward movements are fair. There is complete paralysis of the internal rectus, so that the eye is turned far out. The left pupil is dilated a little, but responds to light. You see this is about as far as the child can open the eyes. About the middle of December it could not open the right one any further than it now can open the left one.

We found nothing else wrong with the child, except that the anterior fontanelle is open, and there are other signs of rickets. There is also a little bronchitis. The child is otherwise well and cheerful, but not quite as well as before this happened. It sleeps a good deal, but is not taking on weight. You can arouse it with a little effort. You can see here the divergence of the right eye and the dilated pupil of the left.

This ophthalmoplegia is a nuclear disease, and the causes given by most writers are syphilis, tuberculosis, diphtheria, tabes, and poisons. Tuberculosis we cannot exclude with absolute certainty in this child; syphilis is excluded, and so is diphtheria; so the cause becomes reduced to one of two things—either tuberculosis or poison. I hesitate to make this statement, but the child was given White Pine Syrup in very large doses. The mother had a four-ounce bottle, and gave a teaspoonful every hour, which is the ordinary dose for an adult. This composition contains, I think, 30 grains of the bark of wild cherry to the ounce. That contains, you know, amygdalin and emulsin, which combined produce prussic acid. It may be

* Since the patient was presented, other examinations of the thorax have convinced the physician that there is incipient tuberculosis of the lungs.

a little far-fetched, but Dr. Fort thinks there may be a possibility of this combination taking place in the stomach and forming the poison, which may have been the cause of the paralysis. It may have been an amount just short of producing more toxic symptoms, and the only result was this ophthalmoplegia. The trouble came on while the child was taking unusual amount of this preparation, and the mother said the child was "dopy" while taking it.

Dr. Stokes: I was much interested in these cases of tubercular iritis, and would like to ask one or two questions in reference to them. In speaking of the proof that these cases are tuberculous, Dr. Friedenwald said that bits of the iris had frequently been inoculated into the anterior chamber of the animal's eye, but with negative results. I would like to ask if any of these cases have produced tuberculosis experimentally in animals' eyes. I would like also to ask if the growth has the histological structure of the tubercle, and on what scientific ground these granulomata are held to be tuberculous.

Dr. Hill: I would like to ask about the possibility of the prussic acid producing this condition of paralysis. Are there not some other ingredients in the composition which might produce toxic symptoms, too? As it relieves a cough, there may be other ingredients of a toxic nature in it.

Dr. Tarrun: As to Dr. Hill's question about the other ingredients, it is a well-known fact that there is a large quantity of chloroform in the preparation, and I believe some morphia.

Dr. Friedenwald: I think there is about 4 minims of chloroform to the ounce, and 3-16 gr. of morphia. In answer to Dr. Stokes' questions, these conditions of tuberculous iritis have in most cases been found to be secondary, and some authorities make the statement that all of them are, and that where the primary lesion cannot be found, it probably exists in some hidden gland. In regard to Dr. Stokes' question about the inoculation experiments, he would not have asked the question had I made myself clear. A number of these cases had been examined, and with negative results, and then it was that Leber investigated the subject, and found that while some negative results were given, others exactly like them gave positive results when implanted into the anterior chamber of the rabbit's eye. Microscopically, they have the structure of tubercles.

I do not know what the pharmacological properties of the White Pine Syrup are, and, of course, there may be other ingredients which might account for the condition. I only mention the prussic acid as a possible causative factor.

Dr. Chambers: "Exhibition of Surgical Cases."

This case is of interest as showing how much brain-injury can be done, and yet make a good recovery. A stray bullet struck this little fellow, fired by a lady practicing with a 22-caliber rifle, not supposed to carry a ball much farther than 100 yards. Here you see the point of entrance, and here the point of exit, directly opposite, going right through his brain. He was absolutely unconscious, and, we thought, dying. On examining his head you could feel a puffiness, and I thought the ball had not quite penetrated the opposite side of the cranium. An incision on this side was made, and the ball removed. Several pieces of bone were removed from this side, and there was a considerable amount of oozing. No drainage

tube was used, the wounds being left more or less open, and kept dressed for about a week. He did not regain his senses for two and one-half months, and then gradually his sensibilities seemed to return. He would answer only in monosyllables, and had no notion of asking for anything. It was doubtful if he could see, but it was evident that his hearing was intact, and it was finally determined that the retina was in good condition. About four months after the injury he began to take an interest in things. He had learned from the talk about him that he had been shot, and he asked when and how. Then he began to take an interest in picture books, and now, so far as we can see, he has a fair amount of intelligence. No definite motor symptoms have followed, and no disturbance of any of the special senses. For a long time he was the thinnest object I have ever seen. Every now and then there would be a little elevation of temperature and flushing of the skin, as there was some suppuration about the wounds for the first two or three weeks. I do not know just what the final result will be. He doesn't seem to have any headache, and is certainly a fairly intelligent child. The ball probably passed behind the motor centers, and through some center the injury of which doesn't make any appreciable difference. It is evident that no special senses are involved. The case gives no particular credit to surgery, nor anything else, but is just one of those cases that get well in spite of everything.

Case 2. This little fellow was attacked on June 14 with pretty severe symptoms of what was thought to be appendicitis. He was brought into the hospital June 29, about two weeks after this attack. His pulse was then 140, temperature 103°, and he had nausea, vomiting, and obstinate constipation. On examination of the appendicular region there was found a long, hard ridge, and tenseness of the abdominal walls running along the line of the colon. On laying it open there was considerable pus, not confined to the appendicular region of the pelvis alone, but extending upward along the colon for some distance. The cecum and the colon were largely involved in the destructive process. Near the tip of the cecum was a large, gangrenous ulceration. Opposite the ileo-cecal valve was another, on the outer wall of the colon, and here, up near the hepatic flexure, was still another. The lower two of these ulcerations were united into one, making two openings, which were brought forward and stitched in the line of the skin incision, and packed around with iodoform gauze to admit of drainage of the pus cavity, and to cause the peritoneal layer of the intestines to form adhesions with the parietal layer. He remained in the hospital six or eight weeks, rapidly regained his strength, and in the course of eight weeks was able to return home. He was brought back here again in September. After washing thoroughly, and packing these openings with gauze, hermetically sealing them as far as we could with gauze and collodion, an incision was made here in the median line, and the lower portion of the ileum was brought up and united to the transverse colon, still allowing the openings to persist in case the anastomosis should not be large enough to carry off the bowel contents. There was some leakage through the openings. There is free communication between the ileum and transverse colon, and there is now very little discharge through

the openings. I am going to try to get rid of that part of the cecum which was ulcerated, and also the ascending colon, and close up this artificial anus. Whether I shall just dissect out the mucous membrane of the colon and let it heal by cicatrix, or whether I shall close up the transverse colon—that part distal to the anastomosis—and then dissect out the whole thing, I do not know. It will be a rather difficult thing, and not free from danger. There is very little escape of fecal matter from the openings.

Dr. Hill: It just occurred to me at this moment that this boy might immortalize himself, and go down into history as a second Alexis St. Martin, and how many points might be elucidated about the secretions of the ileum! If it could be allowed to remain as it is, and let some physiologist make experiments with the secretions that escape, it would certainly be of great interest.

The other case of Dr. Chambers' is also of peculiar interest. The ball evidently struck back of those motor centers that cluster around the Rolandic fissure, and passed through that area which probably has no special function. It is very curious and interesting, for the ball certainly went through the brain, and thousands of cells have been destroyed. It would be of exceeding interest to know just what has been knocked out of that boy's head. It may have knocked out something that will have left him a better man. It would certainly be worth while to watch just what the result of such an injury to the brain will be.

Dr. Beck: I would like to ask just what method of anastomosis was used in this case—whether the simple stitch, or one of the mechanical devices.

Dr. Biedler: Just a word in regard to the case and the remark about the method of intestinal anastomosis. I think the chief advantage of the mechanical devices has been to teach us how to apply a better stitch. I have tried a good number of them, and that has been my conclusion. I think Dr. Hill's suggestion of the let-alone treatment in this case would be a good one to adopt. I think if further treatment were instituted it could with propriety be called surgical interference.

As regards the brain case, there was no definite suggestion made by Dr. Chambers as to the course of the bullet. It is, of course, most probable that the ball did transverse the brain and go straight through, but it is also possible that it did not. The question of just how much injury the brain can endure and recover from is one of the most interesting questions of the day, and one which, perhaps, the general surgeon has given about as little consideration to as any other. There is no doubt that Dr. Chambers' treatment has been just what it should have been throughout, but I would like to say a word or two about some other cases of relative significance. I had a case about twelve years ago, where a boy was leading a horse attached to a cart loaded with brick. The boy was knocked down, and the cart passed over the occipital bone, producing a compound, comminuted fracture. He lost great quantities of blood and several tablespoonfuls of brain substance. He made an uninterrupted recovery. One-third of the occipital bone was removed. He is living and driving a wagon today. I had another case in which a great deal of the brain substance was lost, and yet intellect was preserved.

Dr. Chambers: There is no doubt in this case that the ball went directly through the brain. It is not a unique case at all. A punctured wound of

this kind is, however, often more serious than where just one side is injured. The case shows a boy with an immense amount of vital resistance, and that is all.

Dr. H. G. Beck: "Exhibition of Medical Cases."

I want to show you these photographs of a case of dermatitis exfoliativa that appeared in the hospital last year. It is a very rare disease. The man is twenty-five years of age; father living and healthy. He had suffered for seventeen years with rheumatism. About six years ago he first noticed this remarkable condition of the skin. It gradually became worse, and presented the picture shown in the photograph. The cause of this disease is very obscure. Some authorities claim that it is the result of treatment of other skin diseases, or that it may follow other chronic skin diseases, as psoriasis and eczema. The relation of rheumatoid arthritis to this skin affection is evident. It is a neurosis, or of nervous origin.

Case 2. This patient before you has been in the hospital three or four weeks; is forty-six years of age; family history negative. Has been addicted to the use of alcohol freely, both beer and whiskey. He was in the hospital about nine months ago for pericarditis. When admitted he gave a history of having lost considerable weight, and was much emaciated. He suffered with morning nausea and vomiting, and was slightly jaundiced. There was some evidence of pleurisy on the left side. The liver felt large and smooth. His temperature was $101-2^{\circ}$; pulse rarely exceeded 100, with respirations rather frequent. The bowels had been quite regular. Had no hemorrhages from the lungs. A diagnosis was rather difficult, so an exploratory operation was decided upon, and revealed the fact that he had hypertrophic cirrhosis of the liver. The man was progressively getting worse—in fact, was in a serious condition—and as no hope of recovery or improvement was evident, an operation was done. The peritoneal covering was opened over a wide area, and it was brought up and united to the parietal peritoneum of the abdomen, and packed around with iodoform gauze. The results in this operation have been uniformly good. This patient has improved steadily since the operation. Has a great deal less pain, and has felt no nausea for the last five days. He has less dyspnea, but the cough still persists. His mental condition, which was very dull before the operation, is now much improved, and he takes a lively interest in things.

Dr. Chambers: About fifteen months ago I had under my care a young woman of thirty-two years of age. She was very much emaciated, suffered with pain and discomfort in the abdomen for six or eight months, and her abdomen was filled with fluid. At first the diagnosis was that of tubercular peritonitis, and I suggested that the only thing I knew to give any relief was to open the abdomen. I did this, and to my surprise found the parietal peritoneum healthy, except that it was filled with ascitic fluid. I naturally thought of the liver, and found a markedly contracted, hob-nail liver. I suggested to the doctor in charge the operation just spoken of. She stood the operation fairly well, was sick for a few days, and slowly recovered. The fluid has not returned, and the woman has gained at least twenty-five pounds. She is apparently in good health.

New Books.

LIST OF BOOKS ADDED TO THE FRICK LIBRARY AND GENERAL COLLECTION OF
THE MEDICAL AND CHIRURGICAL FACULTY IN THE PAST THREE MONTHS.

	DATE.
Baldwin, J. M., ed., Dictionary of Philosophy and Psychology. Vol. I.	1901
Biervliet, J. J. van, La mémoire.....	1902
Bowlby, A. A., and others, A Civilian War Hospital.....	1901
Craig, C. F., The Estivo-Autumnal Malarial Fevers.....	1901
Crile, G. W., Problems Relating to Surgical Shock.....	1901
Curschman, H., Typhoid Fever and Typhus Fever. Edited by Dr. W. Osler.....	1901
Deutsch, W., Der Morphinismus.....	1901
Duclaux, E., Traité de microbiologie. Vol. IV.....	1900
Esmarch, F. von, and Kowalzig, E., Surgical Technic. Edited by N. Senn.....	1901
Fagge, C. H., and Pye-Smith, P. H., A Text-Book of Medicine. Vol. I.....	1901
Fischer, H., Leitfaden der kriegschirurgischen Operationen.....	1901
Fleury, M. de, Les grands symptômes neurasthéniques.....	1901
Hemmeter, J. C., Diseases of the Intestines.....	1901
Hewitt, F. W., Anesthetics and Their Administration.....	1901
Hoffman, F. L., History of the Prudential Insurance Co. of America.	1900
Hollander, B., The Mental Functions of the Brain.....	1901
Hutchison, R., Food and the Principles of Dietetics.....	1900
Janet, P., The Mental State of Hystericals.....	1901
Lenzmann, R., Die entzündlichen Erkrankungen des Darms.....	1901
Löffler, F., Vorlesungen über die geschichtliche Entwicklung der Bakterien. Pt. I.....	1887
Meric, H. de, Syphilis and Other Venereal Diseases.....	1901
Muir, R., and Ritchie, J., Manual of Bacteriology, 2d ed.....	1899
Osler, W., The Principles and Practice of Medicine, 4th ed.....	1901
Palmer, M. D., Lessons on Massage.....	1901
Pembrey, M. S., and Phillips, C. D. F., The Physiological Action of Drugs	1901
Poore, G. V., A Treatise on Medical Jurisprudence.....	1901
Purdy, C. W., Practical Ureanalysis and Urinary Diagnosis, 6th ed..	1901
Roberts, C. H., Outlines of Gynecological Pathology and Morbid Anatomy	1901
Robson, A. W. M., and Moynihan, B. G. A., Diseases of the Stomach.	1901
Simon, C. E., A Text-Book of Physiological Chemistry.....	1901
Simon, C. E., A Manual of Clinical Diagnosis.....	1902
Starr, L., Diseases of the Digestive Organs in Infancy and Child- hood, 3d ed.....	1901
Sternberg, G. M., A Text-Book of Bacteriology, 2d ed.....	1901
Wellmann, M., Fragmentensammlung der griechischen Aerzte. Vol. I..	1901
Williams, F. H., The Roentgen Rays in Medicine and Surgery.....	1901
Williams, P. W., Diseases of the Upper Respiratory Tract.....	1901

Book Reviews.

AMERICAN EDITION OF NOTHNAGEL'S ENCYCLOPEDIA OF PRACTICAL MEDICINE. TYPHOID FEVER, AND TYPHUS FEVER. By Dr. H. Curschman, Professor of Medicine, Leipsic. Edited, with additions, by Wm. Osler, M.D., Professor of the Principles and Practice of Medicine in Johns Hopkins University, Baltimore. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co., 3 West Saratoga street. 1901.

This is the first of an excellent series of monographs making up Notnagel's Encyclopedia of Practical Medicine, and their republication in English is a particularly welcome undertaking. Curschman's book is generally regarded as the standard authority upon typhoid and typhus fevers. The American edition, under the editorship of Dr. Osler, has been thoroughly revised and brought up to date. The most important additions to the original work are found in the chapters on Bacteriology and Pathology, and relate to the distribution of the typhoid bacilli in the urine, the rose spots, and the blood to the localized lesions of typhoid fever, Thayer's work on the blood in typhoid, Keen's work on the surgical aspects of typhoid fever, Cole's blood-culture method of diagnosis, Wright's antityphoid inoculation, Cushing's contributions to the surgical treatment of intestinal perforation—in short, whatever has marked a distinct advance in our knowledge of typhoid fever since the date of the original German edition has found a place in the American edition.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Especially-Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose, and Throat, and Other Topics of Interest to Students and Practitioners by leading members of the Medical Profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., Philadelphia, and others. Volume III. Eleventh series, 1901. Price \$2. Philadelphia: J. B. Lippincott Company. 1901.

This volume is divided into five sections. The first, on Therapeutics, contains seven lectures, covering phototherapy, antitoxic sera, spa treatment, treatment of acute and chronic diseases complicating pregnancy, gonorrhea and marriage, the accidents due to spinal cocainization, selection of cases of consumption for sanatorium treatment, and the treatment of fluders.

Under the head of Medicine there are six lectures on convulsions of children, echinococcus disease, the prophylaxis, diagnosis, and cure of heart disease, lead poisoning, exophthalmic goitre, and the treatment of inebriety.

There are four lectures in Neurology, ten lectures on surgical subjects, and two on diseases of the eye and throat.

All the contributors to this volume are representative men in their several specialties, and the book as a whole fully sustains the reputation of this excellent series.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, APRIL, 1902.

PROFESSOR SEDGWICK AND THE W. C. T. U.

AS PRESIDENT of the American Society of Naturalists, Prof. Wm. T. Sedgwick delivered on January 1, 1902, an address on "The Modern Subjection of Science and Education to Propaganda" (*Journal of the American Medical Association*, February 15, 1902). About half of this interesting paper is devoted to the perversion of elementary instruction in physiology in the public schools of this country through the influence of the Woman's Christian Temperance Union. Dr. Sedgwick says on this subject much that ought to have been said long ago, and should be repeated until the thousands of teachers, who now dare not speak, are encouraged to cry out against the fanatical oppression of the W. C. T. U. Necessarily, Dr. Sedgwick's article includes a lively appreciation of Mrs. Mary Hunt, whose unique distinction is to have become by legislative enactment the supreme and impeccable authority upon a part of the subject-matter of public education, and, so far, to hold servile every State board of education, to dictate to authors and publishers, and to coerce the minds and consciences of teachers throughout the United States.

A politician so powerful need not have noticed the protest of a plain man of science, but in the *Journal* for March 22 Mrs. Hunt replies to Dr. Sedgwick at considerable length. She does not disguise the intention of the W. C. T. U. to maintain control of the public-school instruction in physiology and hygiene, though she attempts to veil the significance of this subjection.

Careless and "unsympathetic school boards" are under the law, not under grace; publishers know that the endorsement of the W. C. T. U. definitely admits a book to the market of the public schools, while in the absence of this endorsement the schools are forbidden to buy; writers know that a text-book of physiology which does not contain, to the full satisfaction of Mrs. Hunt, "the whole truth against" the most destructive of human habits cannot obtain the endorsement of the W. C. T. U., "and woe is me," adds Mrs. Hunt, "if in this I fail in aught of my utmost duty." And all this, we are told, is not a subjection of education to a self-constituted oligarchy, but is an expression of the "will of the people."

Maryland furnishes a most remarkable manifestation of the "will of the people," an example of absolute conformity to the ideas of Mrs. Hunt. The

law of Maryland requires not only the "whole truth about alcohol and the narcotics" to be taught in the public schools, in precisely the kind and measure dictated by the W. C. T. U., but requires also that the books shall be published in Maryland. Thus by popular will a monopoly of the Maryland market is granted to the W. C. T. U. and a Baltimore publisher. The schools are supplied with three books, two of which are of unknown authorship. These two books are beneath comment, and are justly disesteemed by the hundreds of teachers who are forced to employ them. They are endorsed by the W. C. T. U., and are further certified by eight led-horses of more or less local distinction.

The history of the third and most advanced text-book is of especial interest, as illustrating the sweet persuasiveness of the "will of the people."

It was a very great day for the science of physiology when Newell Martin began to work at the Johns Hopkins University. No one knows better than Dr. Sedgwick how the cause of temperance has grown indebted to the science of physiology since those labors began. It is doubtful if the thought of writing a simple book of physiology could have entered a fitter mind than Martin's. One may also doubt if, in view of the special purpose of the book, Martin could have chosen a better collaborator than Hetty Cary. These two produced a book called "The Human Body," the very best of its kind, according to the best qualified critics. The "will of the people," however, decided against it. It did not, according to Mrs. Hunt, teach "the whole truth against" the most destructive of human habits, and being therefore "a rum book," was excluded from the Maryland schools. The Maryland publisher was quite equal to this occasion. He had no fanaticism of temperance or veracity. Martin's book was revised by an unknown; the book was then endorsed by the W. C. T. U., and the schools were supplied with a hyphenated Martin, probably not published or printed in Maryland, though bearing a Baltimore imprint and the conquering sign of the Boston dispensation.

The present writer does not know how Martin's "Human Body" fared in other States, but the stigma upon the Maryland edition alludes to the defects of Martin's original workmanship, and says that, these faults having been amended, the book is "*now*" recommended.

This is, of course, no evidence of the subjection of science or education to the will of Mrs. Hunt, but merely signifies the incoercible desire of the scientific men of Maryland to speak by the mouth of a Massachusetts politician.

AN AMERICAN HERO OF THE SIEGE OF METZ.

THE *British Medical Journal*, March 1, contains the interesting story of an American medical student who lost his life in the typhus epidemic which prevailed toward the end of the siege of Metz. His name is unknown, but his devotion, the *Journal* says, "entitles him to a place in the valhalla of medical heroes." The story is reprinted here not only because it is an in-

spiring narrative, but also in the hope that, by retelling the tale again and again, we may discover the name of the young hero, who can hardly have passed out of living memory in thirty years:

"After the surrender of Metz on October 29, 1870, it was found that 'black typhus fever' was raging amongst the French soldiers who had survived the siege. The Grande Place or great square of Metz was packed with railway wagons belonging to the Eastern Railway Co. of France, brought within the fortifications in order to save them from falling into the hands of the Germans. During the siege these wagons had been converted into field ambulances, in which the typhus patients were placed after their removal from the hospitals. Each truck had accommodations for at least six patients, and as there were 320 wagons, the typhus patients must have numbered 1800. After a certain lapse of time a detachment of German soldiers entered the Grande Place in order to remove the dead for burial. A large quantity of quicklime was brought in wagons and thrown from long-handled shovels over the corpses in the trucks. The bodies were then swung by the legs into the wagons, carted away into the fields outside the walls, and thrown promiscuously into huge trenches prepared for their reception. The soil was at once shoveled over them. 'Tools,' as Byron bitterly protests, 'the broken tools which tyrants cast away.' Among the bodies thus unceremoniously huddled into the trenches was that of a young doctor, who had volunteered to attend on the sick men in the railway wagons, and who had himself fallen a victim to the fatal malady. The pathetic story of this youth of twenty-two, which I afterwards heard from my friend Whitwell, who had it from what he considered to be a reliable source, deserves mention as a remarkable instance of magnanimous self-sacrifice and courageous devotion to duty. He was a medical student of American nationality, unknown to me even by name. He had served in the French army as a surgeon throughout the campaign, and had been shut up with it during the siege of Metz. When the 'black-typhus' patients had been conveyed out of the hospitals into the railway wagons in the Grande Place, and no surgeon or nurse was found willing to be shut up entirely with them in the square, he volunteered to go alone into the enclosure to undertake this dangerous duty. As a medical man he knew perfectly well he was taking his life in his hand in thus devoting himself to the care of these men, who were dying of the most terribly infectious of all forms of fever. All that one pair of hands could do to relieve their sufferings he did for them by night and day, literally handing them the cup of cold water in the name of a disciple, for it is to me inconceivable that any lesser motive could possibly induce a youth of twenty-two to undertake so dangerous a task than 'the love of Christ constraining him.' Naturally, in a short time the fever seized him in that hotbed of disease and ended his brave young life. Buried undistinguished among the heaps of corpses thrown indiscriminately into the trenches, 'no storied urn or animated bust' reared over that nameless grave to commemorate his noble self-sacrifice in the service of his fellow-beings, he remains in my memory and in that of my companions who knew the story to be distinguished as the one true hero of the siege of Metz."

Medical Items.

WALTERS' BATHHOUSE No. 2, on Columbia avenue, will be formally opened on Tuesday, April 1.

DR. ROBERT H. GOLDSMITH celebrated the fiftieth anniversary of his entrance upon medical practice on March 9.

THE Board of Health of New York city has declared against the compulsory vaccination measure now pending at Albany.

DR. G. FRENCH OWENS of Upper Marlboro has said for Manila, having been appointed to the United States Army Medical Corps.

THE Association of American Physicians will hold the seventeenth annual meeting at Washington on April 29 and 30 and May 1, 1902.

CASES of bubonic plague continue to be discovered at intervals in California. Only fatal cases are recognized. The last death was reported February 21.

HARVARD MEDICAL SCHOOL has profited to the extent of nearly \$3,000,000 by gifts from John D. Rockefeller, Mrs. Collis P. Huntington, and J. Pierpont Morgan.

THE *Cleveland Medical Journal* is a new arrival in the field of medical journalism. It combines the interests of the *Cleveland Medical Gazette* and the *Cleveland Journal of Medicine*.

THE Ontario Medical Library received recently a gift of \$1200 worth of books from Dr. Howard Kelly, who thus founds a collection in memory of the late Dr. Leslie M. Sweetman.

THE Laetare medal has been conferred by the University of Notre Dame upon Dr. John B. Murphy of Chicago in recognition of his Christian character and his contributions to the science of surgery.

THE State Board of Charities of New York has approved the articles of incorporation of the New York Red Cross Hospital. The charter of the hospital forbids the use of alcohol for internal medication or as a beverage.

THE legislature of New Jersey has passed the bill appropriating \$10,000 to support an experiment station to make scientific investigations into the habits and breeding-places of mosquitoes and their relations to public health.

THE *Detroit Free Press* says that there is no record of a Detroit butcher who suffered with tuberculosis. This observation confers a remarkable distinction upon butchers—or upon Detroit—or upon tuberculosis—or upon the *Free Press*.

DR. JOHN H. CHRISTIAN of 1801 Madison avenue died on March 13 at Richmond of tuberculosis. Dr. Christian was fifty-six years old. He graduated at the Medical College of Virginia soon after the Civil War, and passed his professional life in Baltimore. He was supreme medical examiner for the Improved Order of Heptasophs.

A VERDICT of \$500 was awarded Mrs. Annie Botsford against the Presbyterian Hospital, New York, for performing an autopsy on the body of her husband without her permission. The defense was that Mr. Botsford's brother had authorized the performance of the autopsy, but the court held that the widow alone could give permission.

DR. CHRISTIAN FENGER, professor of clinical surgery in Rush Medical College, died in Chicago on March 7, aged sixty-two years. Dr. Fenger graduated at the University of Copenhagen in 1867. He had an extensive and varied professional experience before coming to this country, in 1877, and since that time had acquired an international reputation.

THE casket which Dr. Osler presented to the Norfolk and Norwich Hospital as a receptacle for the skull of Sir Thomas Browne is said to be a very choice work of art. It is oblong in shape, eleven inches by thirteen, and eleven inches deep. The four sides and top are of glass, with silver mountings, set upon a stand of ebony. On the stand are four gilt plates, one bearing the name of the donor, and the other three bearing selected quotations from the *Religio Medici*.

THE American Association of Urologists was organized on February 22, 1902, for the purpose of further development of the study of the urinary organs and their diseases. Although most of the founders of the association are specialists in genito-urinary diseases, membership is not limited to those engaged exclusively in this specialty. The association consists of active, corresponding and honorary members, and is in great measure modeled upon the plan of the Société Française d'Urologie, modified to suit American circumstances and conditions. The annual meeting of the American Association of Urologists will be held on the last day and the day following the annual meeting of the American Medical Association. The officers of the association are: Ramón Guiteras, M.D., president; Wm. K. Otis, M.D., vice-president; John Van der Poel, M.D., treasurer; Ferd. C. Valentine, M.D., secretary; A. D. Mabie, M.D., assistant secretary.

A VERY timely treatise on smallpox, to sell at \$3, is announced for publication early in April by J. B. Lippincott Co. It is written by Dr. George Henry Fox, professor of dermatology in the College of Physicians and Surgeons, New York city, with the collaboration of Drs. S. Dana Hubbard, Sigmund Pollitzer, John H. Huddleston, all of whom are officials of the health department of New York city, and have had unusual opportunities for the study and treatment of this disease during the present epidemic. The work is to be in atlas form, similar to Fox's Photographic Atlas of Skin Diseases, published by the same house. A strong feature of the work will be its illustrations, reproduced from recent photographs, the major portion of which will be so colored as to give a very faithful representation of typical cases of variola in the successive stages of the disease; also unusual phases of variola, vaccinia, varicella, and diseases with which smallpox is liable to be confounded.

THE College of Physicians and Surgeons of Baltimore has arranged post-graduate courses for practitioners of medicine who desire to spend time in advanced clinical and laboratory study. The courses are grouped under the heads of general medicine and surgery, the medical and surgical specialties, and labora-

tory work in clinical medicine, pathology, bacteriology, and pharmacology. The course in medicine is given by Drs. H. C. Beck, T. R. Brown, J. H. Pleasants, and Cary Gamble. That in surgery is conducted by Drs. C. F. Blake, H. H. Hayden, A. C. Harrison, and A. Cotton. The course in gynecology is by Dr. W. S. Gardner, in obstetrics by Dr. C. E. Brack, in ophthalmology by Dr. Harry Friedenwald, in pediatrics by Dr. John Ruhrah, in gastroenterology by Dr. Julius Friedenwald, in laryngology and rhinology by Dr. F. D. Sayer, in dermatology and genito-urinary diseases by Dr. M. Rosenthal, in pathology by Dr. Standish McCleary. The laboratory courses are conducted by Drs. Thomas R. Brown, H. G. Beck, H. C. Knapp, John Ruhrah, Julius Friedenwald, S. McCleary, S. Rosenheim, and S. J. Fort.

A CONFERENCE of representatives of State boards of health was held in Washington on March 12 and 13 to consider the differences of opinion respecting the several measures now pending in Congress providing for a national public health service. Those present were Dr. Edmond Souchon, president of the Louisiana board; Dr. James Evans of the South Carolina board; Dr. A. H. Doty, quarantine officer of New York city; Dr. U. O. B. Wingate of Wisconsin, Dr. H. M. Bracken of Minnesota, Dr. Henry D. Holton of Vermont, Dr. Alex. Lowber of Delaware, Dr. Durgin of Boston, Dr. D. Lewis of New York, Dr. Heller of Pennsylvania, Dr. W. H. Sanders of Alabama, Dr. William H. Welch, president of the State Board of Health of Maryland. Representing the committee on national legislation of the American Medical Association were Drs. H. L. E. Johnson of Washington and William L. Rodman of Philadelphia. Surgeon-General Walter A. Wyman of the United States Marine Hospital Service was also present. The conference decided to recommend the passage of the Hepburn bill, with a slight modification of section 7. This bill is the one which changes the name and enlarges the powers of the United States Marine Hospital Service. The amendment relates to the calling of conferences of State and Territorial boards of health, requiring such conferences to be called upon the demand of any five State boards of health or quarantine officers.

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SUGGESTIONS CONCERNING MEDICAL HISTORY.

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Boston, Mass.

ONE characteristic of latter-day thought is the almost complete substitution of the conception of evolution for that of progress. Where fifty years ago this, that or the other advance in the intellectual or material world was greeted as a sign or a cause of progress, it is now, to as great an extent, the custom to treat like matters as links in the chain of evolution which binds in a natural order the detailed phenomena of the material and ideal world.

Probably this fact is accountable for an apparent decrease of enthusiasm among the friends of progress. General statements do no find a ready acceptance; the process of adapting the new link to the chain requires some time, and often long discussions are raised as to the proper nature of the link in question; the hypothesis of evolution has become a sort of test of the validity of a new thought or a new discovery; if they do not fit into the conception of the law of evolution applicable to the phenomena in question, they are rejected as unnatural and untrue.

Whatever the fate of the hypothesis of evolution may be, there can be no doubt of its value as a substitute for the loose notion of progress whose place it has taken. It has not only notably lessened the errors of enthusiasm; it has also directed a more searching light upon the study of the past; it has rearranged much historical matter and added precision to the conception of the philosophy of history. It has thus introduced order into and widened the field of thought. Subjects which once seemed irrelevant in certain fields of thought are now treated as fundamental in the domain concerned. History has learned, for instance, that the changes in the life of the people are more vital than the glittering facts which have in the past too often formed a large part of its material.

It seems paradoxical that the effects of this hypothesis, the keystone of the ruling scientific philosophy, has affected all departments of history excepting that of the history of our profession. Here it

seems as if there were no evolution of the subject itself and no application of the ideas involved to its material.

It is obvious as to the first point that medical history as a part of the curriculum of the medical school is not now considered to a greater extent than it was a century ago. In our own country probably no clearer view of its practical importance was ever held than that acted upon by Thomas Jefferson, but under the administration of Dunglison nothing practical came of it, and the subject was dropped. In the English schools its fate has been no better; in the German and French schools it has had slight recognition, and this more from the richness and importance of the literature of the subject than from any idea of its practical importance. If there has been any development it has been in the literature of the subject, not in the medical schools. In literature a striking fact is the richness of the contents of the encyclopedic medical histories of the eighteenth century. Haller, Schulz, Boerhaave, Friend, Douglas, Le Clerc, Eloy and others gathered from every source the detailed annals of our art; but few corrections and few additions were left for subsequent workers. Sprengel was nature's selection for the pragmatic historian of our profession, and his work has been the source of most subsequent medical histories. With the exception, perhaps, of Littré, few serious attempts have been made at a study of cause and effect in the light of later developments of thought; but he has been more the follower of Comte, the upholder of the positive philosophy and the learned critic and editor, than the medical historian. The chief characteristics of medical history during the nineteenth century have been a few fine monographs, following the specialization of our art, and the continued interest of men of the finest professional culture in the subject, in spite of its neglect as a practical discipline in the schools. This subject, then, seems to stand very nearly where the eighteenth century left it. It has been practically declared to be agreeable and refining, but not of great practical use.

In illustration of this view, as the limits of the occasion permit, let us glance at a few samples from among works in our tongue. The translations of the classics, furnished by the liberality of the Sydenham Society, are, perhaps, as noteworthy as anything of the kind in existence. The beloved figure of Dr. Adams is at once suggested, and a glance at the preface of the "*Paulus Aegineta*" shows his view and the conventional view of the study of the history of medicine. We are directed to a study of the ancients with a view of practical improvement in our art. Such ideas could only lead to disappointment. Common sense and experience soon settled the matter, and the failure was, unconsciously perhaps, charged to medical history.

Adams' name suggests that of his eulogist, Dr. John Brown of Edinburgh. His most important paper, "*Locke and Sydenham*," is still pleasant reading, though supplanted by the late contribution of Professor Osler. But Brown's ideas as to the proper field of usefulness of medical history were hardly an advance upon those of

Adams. He writes as follows: "It appears to us one of the most interesting, as it is certainly one of the most difficult and neglected, departments of medical literature to endeavor to trace the progress of medicine as a practical art, with its rules and instruments, as distinguished from its consolidation into a systematic science, with its doctrines and laws, and to make out how far these two, which, conjoined, form the philosophy of the subject, have or have not harmonized with and been helpful to each other at different periods of their histories." Now, Dr. Brown knew that the theories of the chemical or of the iatro-mechanical systemizers, for instance, had only a limited effect upon the practitioners of those days, and that the relation of art and science in such epochs gives contributions to the philosophy of medical errors. The philosophy of medical literature or of medical history is a larger subject, and could only be evolved by a careful research as to the aggregate of the scientific truths of these epochs. The professional, conventional view of science and the real aggregate of scientific truth in any epoch are entirely different matters, and we shall have no real philosophy of medical history until the fact is realized. In the narrower field of the inter-relations of any practical art and its related science conventionalities always tend to become established. They become sanctioned, and rule for generations. It is the function of philosophical study of history in any department to overturn all such conventionalities and to substitute truth for them. This fact is well illustrated by Brown's estimate of Sydenham. True, he was supported by Boerhaave, Haller, Van Swieten, and most of the eighteenth-century cyclopedists, but the truth is that Sydenham was far from being an ideal medical man. It is absolutely painful to read his reflections upon his fellow-practitioners, and it is obvious to anyone who will think for himself that he ascribes altogether too many of the phenomena of disease to their practice. He altogether failed in finding the real merits of Bacon or of Locke, in spite of his use of their names, and no wonder, for he seems to have had no conception of either philosophy or science. We can find today, I think, no evidence that he equalled Morton as a practitioner. His theories, in spite of his talk, were as crude and as gross as those of most of his fellows, but he had too little science to be tempted to form a system of them. Did it lessen Shakespeare's merits that for centuries he was almost unknown, or does it confirm Sydenham's that he has been so overpraised? Among us the same statements are true of Rush. The admiration of Ramsay was not based upon solid grounds. Rush may have been greater morally than Sydenham, but his relations to the art and science of medicine in no way demonstrate his greatness as a physician. Whatever opinion may rule today, we venture the prediction that one sign of a higher development of medical history will be a restatement of the merits of both. Our last illustration of the conventional nature of much of the contents of history is Foster's "Lectures on the History of Physiology." We had a right to expect, even in a compend, from such a master some evidence of research, some contributions of new truths. Every

lover of medical history must have been struck with the unsatisfactory nature of most of our professional historians' treatment of the period of the renaissance. One of the most meager and unsatisfactory chapters in general is that of the history of physiology during this period. And it seems to us Foster has added nothing. It arose, as independently as anatomy, in the middle of the fifteenth century, and is of peculiar interest as an important part in the revival of the study of philosophy to which the new learning gave rise. The highest culture of the time was employed in an attempt to take up for solution the questions started by Aristotle and Plato. Anatomy had not then differentiated man. To them he was a part of the cosmos. One can see in the renaissance the hypotheses of the *Timaeus* in full play again, but not in a slavish spirit. All the great ancients were treated to the freest of criticism, and probably much of the independence in questioning Galen and the old anatomists in the school of Padua, where Tilesius, ballasted with a critical learning which Panacelsus lacked, used the ideas of the latter as freely as he did those of the old philosophers. I believe that Nicolaus of Cusa, the learned bishop of Brixen, represents better than any other man of the fifteenth century this revival of the study of physiology, and that Bruno, Tilesius, Patritius, Cardanus, Servetus, Campanella and others were his direct followers. The stream lost itself in the morass suggested by the names of Van Helmont, Silvius, Fludd and their like, but the overflow, it seems to me, is modern physiology. Harvey and many other great men drank of these waters at Padua. We hear little of them, as we until recently heard little of Harvey's embryology. Probably this was suggested to Harvey by the physiologists of that school, estimated more truly by Bacon and Des Cartes than by any medical historian. The relations between this and other famous schools, particularly that of Paris, and a thorough study of the origin of physiology from 1450 to 1650, would be of great interest to more than the medical profession. All consideration of these facts we miss in Foster, and one of the clearest demonstrations of the fact is that all he says of Des Cartes applies literally to Tilesius, of a previous century (see Foster's "Lectures on the History of Physiology," p. 57). The subject is of fully as much importance as the study of the history of mysticism in its relation to philosophy, and it reminds one of that subject.

In spite of Professor Foster's evident learning and reputation as a physiologist, we believe he erred in placing the origin of modern physiology in the few chance observations of Vesalius. Probably Vesalius studied Tilesius, who he may have known at the court of the Emperor, without an idea of substituting his anatomy for the former's intricate system of ideas. Allowing a considerable margin of error for these opinions, it seems that a new study of the phenomena concerned is essential to an account of the history of physiology. If this is so, the silence of medical history upon the subject is a further illustration of the undeveloped and stationary condition of the subject. The cause seems to be the same as in the past—our every-day familiarity with the portion of science which

directly concerns us blinds us to the effects of the great epochal truths which science as a whole occasionally establishes and of which general philosophy gives account. The intuitions of the profession, as expressed by Dr. Brown, have not been put in logical order. As individuals we have felt for the new scientific education; for the reforms urged by Lyell, Huxley, Darwin and their fellow-savants a sympathy which the university bodies in general, who to a large extent control us, have not known how to organize and develop. In the absence of such convulsions as have shaken theology to its foundations, such movements as Jeremy Bentham and Professor Maine have originated within the conservative profession of law, such movements as the development of modern philosophy have originated in the world at large, we have congratulated ourselves upon our conservatism, upon the absence among us of all such revolutionary movements. We take pride in our old Hippocratic watchwords as though it were a merit to be without the science which is making us a great and respected profession. Our students hear us in the same spirit call Sydenham the English Hippocrates, and form their ideals of the wider relations of the profession upon the false enthusiasm so produced. In our schools we are apt to plod along according to conventional methods, without that foresight and enterprise which habits of real research in history should foster. For instance, in adopting embryology as a part of the curriculum we were in the schools nearly a century behind the developments of the literature of the subject, and for this very reason we had the subject crowded in upon us as a highly-developed specialty in the amazing details of which the interests of our art suffer. If the subject had been rationally introduced at an early stage of its development, can it be doubted that in its evolution a more perfected presentation of it for the uses of the surgeon and the physician would have resulted, even if it were necessary to dispense with many hypotheses which originated in the very last phase of the development of comparative embryology?

Bacon, Sprengel and a host of competent authorities have mentioned this peculiar tardiness of our profession in utilizing the results of general enlightenment. The facts are too apparent to need much more of demonstration. It is hardly an agreeable subject for medical men, but is it not possible in the light of evolution to study our defects rationally and institute within the profession rational remedies for them?

If it is true that daily familiarity with our special sciences causes us, as Schiller has strikingly put it, to look upon the goddess as a milch cow which gives us our daily milk, the remedy lies, for us as for the rest of the world in like cases, in getting into touch with the great truths of philosophy, and the means of so doing for us, as with the rest of the world, is earnest, scientific research in our history. To this end the subject is of the highest importance in our schools, where proper teaching will in little time directly produce a scientific criticism which of itself will take care of the further development of the thought of the professional body. No one can do

this professional work for us as well as we can do it for ourselves. The professional mind must be molded in the plastic stage, but it must be cared for that the old methods which have once strangled the history we plead for, in its infancy shall not be allowed to suffocate the infant again. Medical literature proves that the subject is of interest enough in itself. If the fields for its practical application are well defined, there will be a perfectly natural growth, but every attempt at spiritless, formal compending should be guarded against by the sternest criticism, for it is simply digging the grave for another burial of the subject. Every special contribution to our annals should be heartily welcomed, but the title of medical historian should stand for its responsibilities as well as its rewards. The simple compender has no place here. He belongs to that class of enemies who are piling up the suffocative burden of uncalled-for and useless medical books. Germany is the greatest sinner, but she has the excuse of carrying out the greatest number of attempts. Is it not possible that the greater practical experience in applying the fruits of philosophical thought and enlightenment to political life possessed by England and America may be of advantage to them in the generous rivalry of a race toward the end of producing a medical history on the basis of a twentieth-century philosophy?

It seems today to some observers that the physiology of our schools is rather overcrowded with unsolved problems, as far as a just regard for art is concerned. It seems that too many of the concepts of physics, as yet unproven in their own field, are finding place as facts in medical text-books. It seems that the great promises of bacteriology are leading to too great a reliance upon and causing a relative lack of culture in many great ascertained truths. These matters, like others relating to our schools, concern the whole professional body. It, with the wisdom gained from its experience in its whole environment, must educate itself to express its intuitions and its conclusions logically. Where shall it look for a sounder culture to this end than in the philosophy of its own history; in other words, in testing its professional thought by comparing it with the best thought of the world? Let us look at ourselves in an eighteenth-century mirror with the purpose of learning objectively the violation of rights which upright men of elegant culture may commit if they are incorporated upon a basis of privilege consolidated by venerable conventionalities. De Tocqueville, confirmed by Walt Whitman, has described America as "in intellectual affairs a province of England," and in such matters it is pretty sure that the reflection will afford views applicable in both countries. Professor Osler's elegant memoir of Elisha Bartlett suggested to me the case of William Charles Wells, and his struggle with the Royal College of Physicians furnishes the "mirror" in question.

Wells was a tory from South Carolina who in the latter part of the eighteenth century went to Great Britain to secure a professional education. Elisha Bartlett wrote a noble account of Wells, but circumstances and the time forbade Bartlett from giving the highest scientific endorsements of Wells, and we recall them, as they are of

importance for our object. Donders and Helmholtz have quoted from his essay on vision and his experiments in optics, but of course they did not go out of the way to enrich the annals of our medical history. The highest endorsement of Wells as a man of science with which I am acquainted is contained in John Stuart Mill's "Logic," where he quotes Sir David Brewster's statement that Wells' "Essay on Dew" is one of the best specimens extant of pure inductive logic. Professor Haeckel has also mentioned Wells as one of the few who anticipated Darwin in the statement of natural selection. Haeckel writes as follows: "Although in this contribution of Wells the principle of natural selection is plainly put forth and recognized, it is only applied to a very limited extent, and to the origin of human races, not to the species of animals and plants." This latter statement is not strictly true, for Wells mentioned the breed of "fine-wooled Spanish sheep," as a reference to page 437 of his work (ed. 1818) shows. The purity and nobility of Wells' character illumines every line of his autobiography, but upon this point Bartlett needs no emendation. Such was Wells, and apparently his friend, Dr. Stanger, was worthy of his friendship. Stanger, upon applying to be examined for fellowship in the Royal College of Physicians, was treated in a manner to be imitated only by another such collection of thoroughbred medical conservatives. Indignant at the treatment of his learned friend, Wells, intent also upon testing the sincerity of certain protestations of the college, allowed his two friends, David Pitcairn and Matthew Baillie, to propose him for the same ordeal. Needless to say, he was rejected. The college as a corporation was too far beneath Wells to understand the significance of his learning or his character. It is pleasant to be able to add that when, later, Dr. Baillie, in the name of the president of the college, asked Wells if he had any desire to become a fellow, Wells replied that he had none. Wells died on September 18, 1817. He had little practice, little money, but a spotless character. When we possess a medical history his name will stand high in its annals.

The Royal College, the other party in the affair, was chartered by Henry VIII for the purpose of succeeding to the medical privileges of the bishops, with whom, as will be remembered, Henry had family affairs to settle. In the charter was a provision that "nothing therein contained be prejudicial to the universities of Oxford or Cambridge." As a matter of subsequent history, it seems that a rivalry was established between these venerable bodies and the college, they striving to see how little medical knowledge might furnish forth a practitioner, and the college to find out how far that little knowledge could be made to prevail in obtaining fashionable practice. As in subsequent times Hunter, Lyell, Darwin, Frarady, Tyndal, Spencer, Huxley *et id omnes genus* were extra-academic and extra-collegiate, it is only necessary to extract their achievements from the gross amount of British science to find the remainder which the universities and the college might share between them. As for the college, in 1638 Chancellor Jeffries admonished

it for its exclusiveness; in 1700 Chancellor Somers censured it on the same grounds; in the latter half of the eighteenth century Lord Mansfield stated his belief that Boerhaave, if living in London, could not have become a fellow, and after all the late reforms it is probable that a fellowship is better coin for purchasing preferment in London than scientific attainments, relatively as great as those of poor Wells, would be. It is an institution that has lived without let or hindrance from any tribunal which a living medical history might have established or might cause to be established.

There is no better evidence of the condition of the universities up to a comparatively late date than the address of the beloved Professor Rolleston upon taking the chair of the restored Linacre professorship at Oxford. He says: "It is interesting to note that here in Oxford till within a few years of the present time we narrowed the application of the word science in what seems now to be a curiously perverted fashion; for, ignoring all the physical world as entirely as though we had already been disembodied, we used the word to denote and connote only logic, metaphysics and ethics. By a 'student of science' in my undergraduate days was meant a student of the works of Aristotle, Kant and Sir William Hamilton. The wheel has since made somewhat of a circle. Our nomenclature, like much else belonging to us, is altering itself into a closer correspondence with the usages and needs of the large world outside. The so-called student of science of the year 1850 is now said to go into the 'school of philosophy,' and the 'student of science,' as our terminology runs in the year 1868, will be found at the Museum studying the works of Helmholtz, Miller and Huxley." The pleasant path for us from this point would be to continue the story of Rolleston, to recall the names of Moseley, Lancaster, Tylor, Balfour, Foster and other scientific lights of the universities; to describe the good results of the restitution of old Linacre's endowments and of the progress of the Royal College in scientific liberalism. But our purpose is to insist upon defects; let us agree of the past, not for criticism or censure, but as glaring instances of pathological results following a complete disuse of all the higher functions which anything like a living medical history would have stimulated. Such outrageous violation of trusts, such disregard of rights, such abuse of privilege, could not have existed in a country where the national life has been so grand and so progressive as that of England if the philosophy of medical and scientific history had been anything like as well cared for as has the philosophy of history in general.

There has been a vicious circle, formed by a chain of vices of university administration and vices of resulting medical organization, outside of which and in spite of which the medical glories of England have grown and flourished. More practical for us is the question of the extent to which we as an "intellectual province" have planted the same seeds and reaped a like harvest. For nearly three centuries we have supported universities copied, in the main, from those of England. It has been our good fortune to have established so many in recent years that we have unconsciously initiated some-

thing like competition, and just as we have originated safety appliances under the stimulus of hastily-constructed and dangerous railroads, so we have originated a large number of technical schools under the stimulus of the barren nature of much of college culture. It has been our bad fortune, in spite of all this, to have the seeds of the mixed rule of State and dogma made more powerful, relatively, by the existence among us of the more popular mixture of trustee and dogma. According to the law which rules in all such matters, the harvest of cant and snobbery has been as plentiful here in the province as there in the empire. Conformity with a hundred heads has been as injurious as conformity with one. In the republic of letters there has been the same lack of original thought, the same dearth and distrust of philosophy, the same ignoble pride in the practical, the same dependence upon foreign literature and foreign thought as in England. It is tiresome to read the stale platitudes which have been put forth to explain our intellectual shortcomings. The plain truth is that while the body politic has flourished in the light of a glorious liberty, the republic of letters has been broken up into a number of petty provinces, each ruled by its favorite dogmas and traditions, as powerful and often as well concealed as those of Sparta. Our profession should furnish numerous allies for the forces seeking to overcome the petty oligarchies instituted by the various "trustees," to aid in freeing our profession from the bonds imposed upon it and upon philosophy. For such purposes, for all true liberalizing means, the study of medical history is a practical one. Anything like scientific working of this field will contribute to a generous culture which will result in shaming our best men from robbing the general profession of their good influence by associating in exclusive bodies, at the same time that it will elevate the rank and file to a position which will render them an educated jury, capable judges of the realities of research and of reputation. Moreover, this is a dignified, professional means to these ends, which, we repeat, are the real practical fields for the application of the results of earnest study of medical history.

In this epoch we are subjecting ourselves to another set of evils from which a careful study of history might save us. I allude to the indiscriminate manner in which we are mixing medical affairs in the tangle of our legislation which is affecting so many national concerns of great importance. There are few thinking lawyers and few scientific students of collateral matters who are not fully in accord with the warnings which Herbert Spencer has so freely reiterated upon this subject. A sketch of one phase of this matter, in the recent history of the profession in Massachusetts, is as follows: About a quarter of a century ago it seemed that we were witnessing the dawn of a new era of medical liberalism. After many years of experience it was evident that old sectarian quarrels were of the nature of the competition sometimes inaugurated between solvent

and insolvent railroads—the party of principle sustained all the losses. It was found that many influential leaders of public opinion were beginning to understand that regularity meant not orthodoxy, not narrowness, but a free, untrammelled relation with all the sciences from which we could hope to obtain benefit to our art; that loyalty to this principle was the real justification of the charter granted to our profession by the State; that all special pleading in support of a dogma by any sect was distinctly hostile to the great principle of our charter as given us by the State, when principles were few and well-defined and sectarianism in medicine was not rampant. The illogical nature, the speciousness of medical sectarianism was beginning to be dimly understood. In this condition of affairs some well-meaning men of our profession betook themselves to the legislature and the lobby with the idea of benefiting the science of medicine by the rather crude art of legislation. There they found a majority a *sine qua non*, and being “practical” men, they secured it by making an alliance with the representatives of the most respectable irregulars. We all know that respectability and virtue are to some synonymous, but the alliance here seemed to imply that our fine principle of medical regularity was no principle; that the means were justified by the end, which was to purge the State of any quackery not State licensed. Alas! the campaign soon demonstrated that as the field was cleared of one kind of parasites, other species flourished the more, while public opinion was lowered to that extent that the virtue of regularity was made to appear as a matter of no great importance, as a simple accident of respectability. Further, it seems as though we were never so quack-ridden and were never in greater danger of gaining a sinister reputation than by our employment of that very sharp tool, the State examination for license. People feel long before their sympathies are logically arranged, and a consciousness exists long before it is clearly expressed. Upon the subject in question it is surprising to what extent it is felt that a medical examination cannot be made fair except the will exist to make it so; in other words, any examiner can pluck any candidate if he wishes to, and anything like a State examination in the presence of any prejudice or passion becomes worse than a farce; it is apt to become an injustice, and under many conditions is apt to develop terrible wrongs. This is an internal affair of the profession in anything but an autocratic, parental State, and if we were half as vigorous in our professional life as proper teaching and proper criticism would render us, we should be without need of State support. Our charter is a grand instrument, and there is no legitimate need of the profession that cannot be based upon its wise foundations. Its support is better than any of the rickety braces which the legislature and the lobby can afford. I believe that the matter has been engineered by a kind of oligarchy common among us, and generally a result of a lack of professional vigor,

which, without serious bad purpose, allowed those functions which keep a body corporate vigorous to be exercised by those who have more taste and leisure than real fitness or statesmanship. In the republic of letters there can be no such arrangement without injury to the free evolution of thought and idea. The absence of vigorous nourishment here is even more injurious than in our bodily life.

Finally, medical history has an answer to a heresy that seems to be very common among us, but whose importance, I confess, may be easily overrated. It is common to hear, especially among those members of the profession who have finished their education in Germany, frank expressions of a belief that the paternalism of the empire is the principal cause of the flourishing condition of medical science and literature there. Of course, it argues great ignorance of the history of the last two centuries to entertain such an idea, but unfortunately in our profession our historians have taken pains to make such ignorance the rule rather than the exception. It is the freedom of teaching, the freedom of thinking, the freedom of philosophizing in the German universities, *in spite* of national autocracy, that has made them the just pride of the German people. How much of real strength they have contributed to that greatness, which appears to have resulted from her victorious arms, I leave for others to determine, but the technical sciences which rewarded the early reception of science into the German universities have surely contributed much to many German manufactories. Germany affords one of the grandest examples in history of success arising from and in spite of poverty and suffering. The Thirty Years' War seems as near unmitigated evil as we can imagine. The century which followed was insufficient for the healing of the dreadful wounds it inflicted, but it wiped out with other things the old strongholds of dogma, and it left the schools to be made over in that burst of enlightenment which is represented for us by the names of Herder, Wolf, Goethe, Schiller, Kant, Winckelmann, Lessing, and their friends and disciples.

After them there was no question of one or two schools for polishing a small ruling class—of schools in which toying with Greek and Latin should sanctify ignorance. Even the classics, as other subjects, were made the objects of scientific research, and in the multitude of schools, with the multitude of professors, were found the sons of the people, often, perhaps, stimulated by some flotsam or jetsam of literature, carried to their very doors by the book fairs which pervaded the land. Literature was not confined to a capital nor culture to a class, and neither literature nor culture were empty sounds. They were the very life of a people spurred to activity at every epoch by the thought of a country to rebuild, of political fragments to be reunited. There is much material for reflection in a comparison of this condition of intellectual freedom and political lack of development with the opposite conditions prevailing in Eng-

land and America, but the paradox is to a great extent explained not by comparing national or political peculiarities or characteristics, but by treating all as so many divisions of the grand republic of letters. Alas! that such a comparison shows little provincialisms, petty intellectual tyrannies in the midst of political freedom, and the reverse conditions in the midst of a rude autocracy.

But what is a century to a nation? Let us hope that the history and the philosophy which in the end will make for the noblest intellectual life will soon be thought "practical" in our schools, and will in our profession work for those higher ends which have justified them in the world at large.

A CONSIDERATION OF THE BOTTINI OPERATION FOR ENLARGEMENT OF THE PROSTATE, WITH REPORT OF SOME CASES.

By George Walker, M.D.,

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(Continued from April)

Irrigation Immediately Afterwards.—This is in all cases necessary, so as to free the bladder from blood and clots. As large a catheter as can be easily inserted is used.

Retention Catheter.—It has been the custom of some operators to use a retention catheter in every case. As a routine practice, I think it is not well to do so. Bottini uses it as the occasion requires. Where there is no marked cystitis which would require drainage, no bleeding nor pain, I think it is unwise to leave it in the bladder, for the reason that it produces some urethral inflammation. Not infrequently it excites contraction at the neck of the bladder, and, besides, it offers a ready means for the entrance of organisms from the exterior. The indications for its use are, first, severe cystitis; second, considerable hemorrhage; third, great pain and vesical tenesmus, caused by fluid in the bladder; fourth, painful catheterization. In these cases the retained catheter certainly offers relief to both the patient and the physician. It can be left in five, six, or even ten days, and Meyer reports an instance where it was left for thirty days without trouble.

Accidents.—Freundenberg in one instance cites a case where he cut through the bladder wall. This was followed by peritonitis, and death. Eisendrath, by the introduction of the instrument, passed through the urethra, making a false passage. Profuse bleeding followed; subsequent sepsis, and death. Andrews had very profuse bleeding, followed by death in a week. Krotoszyner cut through

the urethra in one case, and death resulted. An operator in Boston had great difficulty in replacing the knife. After its removal, found it to be bent. Rath in one instance was not able to return the knife into its sheath, and took it out slightly open. A deep cut was made all along the anterior urethra; furious bleeding followed, lasting two days. The patient made a good recovery. In another instance the knife cut through into the fossa of Retzius. Sepsis, peritonitis, and death were the results.

In one case which has been related to me the bladder was cut through while making an incision 5 cm. in length. These accidents, I think, can be in a great measure avoided by the new instruments of Young and Freudentberg.

Complications.—Sepsis occurred in one patient reported by Guiteras; pyemia, in one by Meyer, two by Freudentberg, both from streptococci; embolism of lungs, one case by Freudentberg; one case of embolism of pelvic veins, followed by death on the second day; in a case reported by Stockman apoplexy occurred on the twelfth day; epididymitis in five of Freeman's cases, and in one of mine; general pelvic suppuration, followed by death, occurred in two cases where the anterior cut was made; a number of cases of prostatic abscess, one of which terminated in septicemia and death; pyelitis and pyelonephrosis in cases by Freudentberg, Meyer, Stockman, and others; suppurating orchitis in Kreissal's case; extensive suppuration of the kidneys occurred in another of Kreissal's cases; various forms of pneumonia were reported by Freudentberg, and many others.

Fever.—Most of the reported cases show slight rise of temperature—99° to 102°—during the first few days. In not a few chills occurred, with a temperature of 105°. A certain number have had rigors and high temperature, which have not seemed to do any harm, or to be followed by any untoward result.

Incontinence.—About 30 per cent. show incontinence, beginning on the second day, and continuing about one week. In a small percentage, not over 4, it was present for several months. In no case has it been permanent.

Cystitis.—In individuals who have had a healthy bladder previous to the operation a certain number have developed cystitis; in fact, I believe the majority had it to a certain degree during the first few weeks. Occasionally this fails to clear up, and gives rise to great discomfort afterwards, although there is no obstruction, and no residual urine.

After-Treatment.—Over one-half the cases need catheterization afterwards; a few are enabled to void immediately after the operation, and do not require catheterization. It is a wise precaution to introduce the catheter, and wash out the bladder once or twice a day. In very irritable bladders, irrigation every four or five hours is necessary. A metal catheter should always be used, and one with

a broad curve can be introduced most readily. The silk and soft rubber are useless, and cannot be introduced without a stilet.

Diet.—Should be simple, and a quantity of water should be ingested.

Medicine.—Cystogen or urotropin, five grains, should be given every four hours for several days before and after the operation. If the pain and tenesmus are great, a local suppository of opium and hyoscyamus is most efficacious.

How Long Should Patients Remain in Bed?—I think they do better to be quiet in bed for the first week, but if they feel quite comfortable, I see no reason why they should not sit up earlier.

Urine.—Where cystitis has not been present previous to the operation, it will be found that the urine becomes turbid, and contains pus and debris about the second or third day. Microscopically, a short, thick bacillus is present, which in two of my cases proved to be colon. This does not seem to give the patient any special discomfort, and it rapidly clears up in most instances. Where cystitis was present beforehand it seems to take on an acuter manifestation.

What Is the Immediate Effect of the Operation?—This varies with the different kinds of glands. The hard sclerotic ones gape immediately after the operation. This has been observed by Young and others who have operated with an accompanying suprapubic opening. The softer forms do not gape. The heat destroys the tissue about one-fourth of a centimeter on either side of the cut.

What Are the Remote Effects?—A number of pathological specimens have been shown. Two weeks afterward the burnt tissue begins to slough, and can be seen passing out during the next ten days or two weeks. Freudenberg presented three specimens in which there was a distinct V-shaped furrow at the cuts. Bangs observed a specimen three months after the operation, which showed also three well-marked furrows. In another autopsy by Bangs of a patient who had practically recovered the use of his bladder, and died from some intercurrent affection, there was no furrow. The tissue between the incisions, having its blood supply more or less cut off, tends to atrophy, so that if sufficient time has elapsed the furrows will disappear. Two observations have been made in which there was a great decrease in the size of the gland as a whole. It has been asked what becomes of the vesical neck. This is finally joined together by fibrous tissue, as is the case after certain rectal operations. It has been urged that subsequent cicatricial contraction follows. Not a single autopsy has come to my knowledge which supports this view.

REPORT OF CASES.

Case I. White, American, aged seventy-eight; had been well all of his life; unusually strong. Denies venery. About three years ago difficulty in micturition began. Noticed that the

amount was not so great, and that the water could not be ejected with much force; no pain or discomfort, except slight burning afterwards. Symptoms remained the same for one and one-half years, there being no change except slight increase in frequency. One year ago micturition became very frequent, with decided straining and some pain. About three months ago became worse, urination being repeated every half to three-quarters of an hour during the day and night; burning pain continuous, very slightly relieved by micturition; passes half-wineglassful each time. General health has remained good. Applies for treatment, stating that he is willing to undergo any operation, however dangerous, and feels that death is far preferable to his present condition.

Prostate is greatly enlarged, apparently the size of a small orange; contour is rounded, surface smooth, except on left lateral lobe, where slight bosses are present; the right lateral lobe is larger than the left; the consistency is moderately soft, except in the upper part of the right lateral, where it is dense and sclerotic. The finger could not pass to the region of the seminal vesicles. There is no palpable enlargement in the middle line, suggesting a third lobe. The median furrow is obliterated; there are no areas of tenderness.

A soft catheter, introduced easily, draws off 500 c. c. residual urine. Patient had voided immediately before being catheterized.

The urine is passed every half to three-quarters of an hour; amount, 50 to 150 c. c., with much straining; pale straw color, nearly clear, no sediment, loose, flocculent feathery mass rises to the top after standing; specific gravity 1.018; acid; no albumen; no sugar.

Microscopically, many small, round epithelial cells, some with clear vesicular nuclei; few mucous cylindroids; no casts; few leucocytes; no bacilli.

After a few days' stay at the hospital a Bottini operation was done. Chloroform was given. The exploration by the Bottini instrument, with finger on prostrate, confirmed previous examination. Three cuts were made—first, in middle line, $3\frac{1}{2}$ cm. in length; second, right lateral, with knife turned about 90 degrees, 3 cm.; left lateral, knife turned 45 degrees, cut $2\frac{3}{4}$ cm. There was very slight bleeding; patient put to bed; hypodermic, one-sixth of morphia given. Patient voided after six hours. During the next two days he voided about every hour, the urine being bloody. It gradually became clearer, and the intervals grew longer. The temperature did not rise above 100° ; there was very little pain or discomfort; the catheter was not used, and after one week he was voiding every two hours during the day, and every four during the night. He left the hospital after ten days. I have seen this patient once since. He has been troubled with frequent micturition, which commenced about three weeks after the operation. He has subacute cystitis,

but there is only 20 c. c. of residual urine, and the evacuations are painless. His general condition is good, and he has gained weight since the operation. Dr. Huger rendered valuable assistance in this case.

Case II. Age sixty-seven. About four years ago patient began to have difficulty and distress with micturition. This continued, with more or less severity, for two years, when both testes were removed. The prostate at that time was very large, being, according to the history, about the size of a medium orange. There was a great deal of pain when the bladder was full, and micturition was necessary every two or three hours. The urine was very foul, purulent, and occasionally bloody. After the operation the patient began to use the catheter. He was much more comfortable, gained in weight, and had but little discomfort during the next year and a-half, although he resorted to the catheter twice daily. About six months ago pain became more severe. Evacuation of the bladder by the catheter relieved him for only a few hours.

General appearance excellent; weight, 155; large abdomen; lungs, liver, spleen, abdomen negative; external genitalia negative, except for absence of testes; prostate distinctly atrophied, soft, both lobes same size; contour ovoidal; lateral diameter approximately 3 cm.; vertical, $2\frac{1}{2}$ cm.; surface everywhere smooth. Finger passed well above, meeting indefinite fullness and resistance in middle line, suggesting presence of third lobe; seminal vesicles atrophied, indistinctly palpable.

Cystoscopically, one sees on the posterior side of urethral orifice a projection which extends well up on the right side, and forms an irregularly-shaped tongue, apparently about 1 cm. in height. Beyond this the lateral lobe does not seem to be enlarged. This is directly continuous with a projection below, which forms a median bar. I took this to be the enlargement of the middle lobe, which had extended up on the side of the urethra. There was some bleeding, and consequently I did not feel absolutely sure of the diagnosis. The mucous membrane was everywhere very deeply injected, and appeared to be thrown into folds. The orifices of the ureters could not be seen. In places a trabeculated condition was present. A careful search was made for calculi, because the symptoms had very strongly indicated it. None could be seen.

Several days later a searcher was introduced, and the bladder everywhere explored. I was very careful about this, for I believed that most probably a stone was present, but none was found.

Immediately after voiding a soft catheter was introduced without difficulty, and 350 c. c. withdrawn; pale straw color, distinctly alkaline; specific gravity 1.018; slightly offensive odor; very cloudy, large flakes, irregularly-shaped smaller ones; heavy gray sediment, which settles at bottom, forming a layer about one-fourth of the

whole mass. Filtered specimen shows 1 per cent. of albumen, no sugar, an occasional red-blood corpuscle, no casts, mucous cylinders, immense numbers of leucocytes, from 80,000 to 100,000 per c. mm., variously-shaped epithelial cells, large shreds of necrotic tissue, and numerous bacteria; a short, thick bacillus, and a much longer one, with staphylococci and diplococci here and there. The patient was advised to enter the hospital and have his bladder irrigated for some time, but he refused, and insisted upon an immediate operation.

On September 26 the Bottini operation was done. Cocaine was used. Three hundred c. c. of salt solution were left in the bladder. The median cut was turned slightly to one side, so as to embrace the projection in that region. It was $1\frac{3}{4}$ cm. in length. The left lateral cut had an angle of about 35 degrees, and was $1\frac{1}{2}$ cm. in length; the right lateral, at about the same angle, was $1\frac{1}{2}$ cm. in length. It was feared to make longer incisions on account of the marked atrophy of the gland as a whole, and he was told that probably a second operation would be done. While the instrument was in the bladder it was carefully explored by another physician and myself, but no stone could be felt.

He commenced to void four hours after operation, first time 50 c. c. This was accomplished at short intervals, without much pain, and with less difficulty. Total amount passed for first fourteen hours, 540 c. c.; very bloody. During the following day micturition was repeated every half-hour; total amount voided, 425 c. c.; temperature 101.2° , pulse 70 to 80; slight chilly sensation; occasional nausea. At 8 P. M. the catheter was introduced, and 700 c. c. withdrawn. Patient was quiet for four hours, then began to be restless; sixth of morphia given; micturition very frequent. On the following morning 525 c. c. catheterized; temperature 101° . During the next day he was very restless, temperature ranging from 101° to 102° , and very little urine was voided. At 8 P. M. he was catheterized, followed by a chill; temperature rose to 104.2° , but rapidly fell, and next morning was normal. Patient remained comfortable all day, with no temperature. Toward the afternoon had slight chilly sensation, but no rise in temperature; was noticed to be somewhat drowsy; great disinclination to food, and occasional vomiting for past two days; very little urine voided. This condition continued during the next three days, catheterization being necessary every six hours; great pain when bladder became distended; temperature gradually dropped to normal; nausea became somewhat better, but drowsiness increased, and he lay in a light stupor, except when aroused by the pain or spoken to by the nurse. During the next few days temperature rose somewhat, ranging from 100° to 102° . No food could be taken, and pulse became quicker and weaker. On the ninth day after operation a suprapubic opening was made under chloroform. The bladder wall was found very

thick, varying from half to three-quarters of an inch; the mucous membrane intensely injected, being a dark red, and in places almost black. The middle lobe of the prostate was enlarged, and formed a definite tonguelike projection about the size of the end of the thumb, which acted as a valve over the internal urethral orifice. To the right side of this, and well imbedded almost under the mucous membrane, there was found a small stone about the size of a bean. It was very rough and hard, with mulberry excrescences. It was dislodged by the finger. The cuts could be palpated, and did not seem to gape, but, on the contrary, the edges were tightly approximated. There was no evidence of local suppuration nor abscess formation. None of the cuts had extended through the bladder wall. By rectal examination there was no swelling nor bogginess of the tissues which would indicate pelvic involvement. After the operation the patient rapidly continued to fail, and died ten hours subsequently, the tenth day after the Bottini cauterization. No autopsy was held.

Case III. Patient, aged sixty-nine; family history negative; has suffered for some time with indefinite stomach malady. Four years ago began to have difficulty in micturition; occasionally grew worse, when the urine would become cloudy. About one year ago he became much worse; micturition more frequent, difficult, somewhat painful; lost some weight; had frequent attacks of nausea and vomiting. Applied to me July, 1901.

Poorly nourished, rather pale; lungs negative; heart slightly enlarged, distinct blowing, systolic murmur at apex; abdomen in upper portion soft; liver dullness normal; spleen and kidneys not palpable; in lower part of abdomen is a distinct mass, extending from pubis upward to the umbilicus. It is smooth, globular, flat on percussion, tense, and fluctuating; probably a distended bladder. External genitalia negative.

Prostate very large; seems almost to fill the pelvis. The surface is smooth, except the right lobe, which in places is slightly nodular. It is everywhere firm, and over the outermost portion of the right lobe very dense and hard. The median furrow is obliterated. In the left lobe are several small areas which are slightly softer and boggy. The finger cannot pass above it. There is no tenderness, nothing suggestive of new growth. Soft rubber and silk catheter meet resistance after having passed 9 cm. into urethra. No. 22 silver catheter introduced without difficulty; 14 ounces clear, pale urine withdrawn. Judging by the distension, this is about one-half the amount in the bladder. Sterilized boric solution was then introduced and more fluid withdrawn. This was continued until the fluid became clear. About ten ounces were allowed to remain.

Specific gravity 1.010; trace of albumen; no sugar; a few hyaline casts; centrifugalized specimen shows epithelial cells, some

small, round, others slightly columnar, irregular protoplasms; clear nucleus. Some of these are very suggestive of pelvic epithelium; very few leucocytes; triple phosphates, urates; no bacteria.

Patient advised to have Bottini operation, but insisted upon going home. Some time afterwards began the use of a catheter, twice daily. He progressively lost weight and strength; general condition became worse. He applied to me the second time, September 1, in a worse condition than at his former visit. He was then so weak that he required assistance in walking. He was admitted to the hospital and advised to postpone the operation, hoping that he would recuperate. The prostate at this time was about as previously described. He was voiding by catheter 1100 to 1300 c. c. twice daily, and in the interval was dribbling.

The urine was very pale, limid; specific gravity 1.008; alkaline; filtered specimen shows $\frac{3}{4}$ to 1 per cent. albumen; no sugar; turbid, thick, heavy precipitate; microscopically, very abundant leucocytes; quantity of variously-shaped epithelial cells; large number short, thick bacilli; cultures proved to be colon.

Cystoscope.—Instrument is easily introduced. The whole gland projects into the bladder; right and left lobe are very prominent, and form decided rounded eminences; the right seems to extend well around, nearly approaching the anterior bladder wall. In the middle there is a distinct bar, which is presumably caused by the middle lobe. This is not nearly so prominent as the lateral. There is a decided pouch formed by the sinking of the bladder posteriorly; bladder everywhere trabeculated; it seems to be uniformly injected. Orifices of the ureters very much higher than normal; right orifice projects into bladder, and is surrounded by slightly papillomatous excrescences. There is no evidence of stone, no new growth, no ulceration.

The residual urine, as proved by the daily catheterization, was sometimes as great as 1500 c. c. Patient progressively grew weaker; lost fifteen pounds in four weeks. On account of his condition I was very averse to operating, and had about made up my mind to let him return home, and continue the use of the catheter. Dr. I. E. Atkinson and Dr. Duvall Atkinson were called to examine into his general condition. They both gave as their opinion that he could stand the operation, and advised that it be performed.

Accordingly, under cocaine, September 29, the Bottini operation was done. One central and two lateral cuts were made, the full capacity of my instrument, $3\frac{3}{4}$ cm. The left lateral cut was at an angle of 45 degrees, and the right somewhat greater. There was very little bleeding. Patient put to bed, and given a hypodermic of morphia.

In the following six hours there was oozing of bloody fluid from the meatus. During the night he voided 300 c. c. of bloody fluid.

The following morning, on palpation, the bladder was found greatly distended.

In the following six hours there was oozing of bloody fluid from the meatus. During the night he voided 300 c. c. of bloody fluid. The following morning, on palpation, the bladder was found very much distended; no pain. The catheter was again introduced, and 500 c. c. withdrawn; temperature 100.5° . The following morning, as 400 c. c. had been voided, the catheter was not used. During the day a small quantity was voided at intervals; temperature 100° to 101° ; general condition good. About 4 P. M. had a distinct rigor, followed by temperature of 104° . Catheter was introduced, and 700 c. c. of very turbid, foul fluid withdrawn, which contained a large quantity of thick, gelatinous, mucoid material. Bladder thoroughly irrigated; temperature rapidly fell, and the following morning was normal. From this on the patient had no rise of temperature above 101° . He was catheterized twice daily, in the meantime voiding from 800 to 1200 c. c. The catheter withdrew 700 c. c. at each time. The amount voided progressively increased, and the amount catheterized decreased, so that at the end of three weeks the catheter was discontinued. The voiding at first was with great difficulty. Later it became easier, and was not painful. When he left he was voiding every two hours during the day, and about three times at night. The residuum had decreased to about 300 c. c., and was still turbid, but acid. He visited me about six weeks afterwards. He had gained twenty pounds in weight, was in most excellent general condition; was voiding every three or four hours during the day, twice at night, with the force, he said, as good as it ever was. There is a small amount of residual.

Case IV. Age sixty-four; well-preserved man. Family history negative. For about six years patient had had more or less difficulty with micturition; it had been attended with pain and too great frequency. The intervals between the attacks were long, in which he had comparative ease. This condition of affairs continued up to about one year ago. The exacerbations had become much more frequent, and the interval was not free from trouble. During these periods he stated that he would have to void every fifteen to thirty minutes during the day and night. He was troubled with headache, buzzing in his ears, giddiness, and general nervousness. He was referred to me in August, 1901. Examination as follows: Well nourished, well preserved, does not appear as old as stated; color good, tongue clean, mucous membranes normal; skin clear, smooth, free from blemishes; heart and lungs negative; liver dullness normal, spleen not palpable, kidneys not palpable, upper part of abdomen negative, hypogastrium is filled by tense mass, which extends to umbilicus, rounded, flat on percussion; probably enlarged bladder. The prostate rather large; it is uniform, rather

soft, no nodules, no hard area. The finger passes above; no third lobe palpable; seminal vesicles can barely be touched; external genitalia negative; catheter passes in without difficulty; meets a slight obstruction in the prostatic urethra. Eighteen ounces of clear, straw-colored urine withdrawn; apparently a large quantity was still present.

Urinalysis.—Pale, acid, 1.015; no sediment; no albumen, no sugar; no leucocytes; few epithelial cells, one or two hyaline casts; no bacteria; phosphates and urates present.

Operation was advised, but declined. Several months later he returned. He stated that for the past two days he was having very little trouble in urinating, and asked that I defer treatment for a few days, in order that we might see whether his condition would continue. He voided every three or four hours during the day, and once at night. The quantity varied from 150 to 200 c. c., the total amount being 1200 or 1300 c. c. in the twenty-four hours. It was voided, he said, easily, but one could observe great difficulty and straining. At the end of ten days a soft catheter, No. 8, was inserted, and sixty-five ounces of urine were withdrawn. There was no trouble following the evacuation of so large an amount. During the next two weeks he was regularly catheterized, and the bladder irrigated with warm boric solution. After this was instituted, he was perfectly comfortable, and did not void any.

Cystoscopic Examination.—Instrument introduced with ease. The prostate projects more on the right side than the left. There is a distinct curve to middle line. The whole gland extends upwards into the bladder. There is no evidence of a third lobe, but the right lobe is rather irregular, and seems in one place to be definitely projecting. The mucous membrane is smooth, everywhere flat, and only slightly injected. Urethral orifices are visible. Searcher does not find any stone.

Bottini was done under cocaine December 15. Median cut, 3 cm.; right lateral, $2\frac{3}{4}$ cm, left lateral, $2\frac{1}{2}$ cm. There was very little bleeding, no pain. Bladder irrigated, few clots evacuated. Patient put to bed, given a hypodermic of morphia; passed a comfortable night; did not void any. Next morning 500 c. c. bloody urine were withdrawn. During the following day there was no voiding; temperature 101° . In the evening 700 c. c. were withdrawn. This was continued for eight days. The patient remained comfortable, the temperature ranged from 100° to 101° ; no blood was voided; there was some bloody oozing. On the ninth day a few drops were voided under great pressure. This gradually increased. The use of catheter was kept up for fifteen days, the quantity having diminished, and the amount voided steadily increasing. It was then discontinued for two days, the patient voiding every two hours, day and night. Temperature rose to 102.5° . The bladder was found distended, was emptied and irrigated. From this time he steadily improved. On the seventeenth day there was a quite profuse hemorrhage, but no symptoms arose from it. On the sixteenth day the burnt fragments began to pass, and continued to do so for the fol-

lowing week. When the patient went away his general condition was first-class. He was voiding, without pain and without straining, about 200 c. c. every three hours. The amount of residual had fallen to 250 c. c. He writes me that he has no trouble whatever.

Late Complications.—The only late complication which I have found in the literature was that of bleeding. One case was reported in which the patient succumbed in the third week to hemorrhage. Such cases are probably due to separation of the slough, thus opening a large vessel.

Objections.—The objections urged against the operation are that it is done in the dark; second, that it makes a cut into the bladder, and does not provide for proper drainage. Fuller objects on the ground of recurrence due to cicatricial contraction (this, however, he states is theoretical); second, that the bladder wall may be cut through; third, that we have no effectual method of treating hemorrhage, which may reach considerable amount before we know it.

Alexander brings forward several objections: First, the operation is not based upon proper anatomical and pathological knowledge; second, that we have no distinct object in view; third, that there is no definite effect produced; fourth, that the good results are most probably temporary.

Advantages.—The good points of the operation are, first and foremost, that it offers a greater number of cures, and a less number of fatal cases, than any other procedure; second, it can be done without the use of a general anesthetic; third, it is never attended with shock; fourth, it does not require a patient to be confined to bed for a long time; fifth, its effects are in many cases immediate; sixth, the accidents and complications are certainly not so serious as in other operative measures; and seventh, that it can be done in a class of cases where the severer operative measures are contra-indicated.

NOTE.—Just as the above article is going to press information is received that Case No. 1 died two days ago, being about eight months after the operation. No particulars can be given.

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Current Literature.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

Assisted by Joseph Hume, M.D.

PHRENIC NERVE INJURIES. Schroeder and Green. *American Journal of Medical Sciences*, February, 1902.

Most authorities hold that injury to the phrenic nerve is very dangerous, if not fatal, but the writer reports a case in which the phrenic nerve on one side was divided, and in which the patient recovered completely and was able to resume his occupation. This led the writers to undertake experiments upon animals, which go to show that the phrenic nerve is not so essential as it has usually been considered. The case reported is a man of sixty-two, with a tumor of nine years' duration on the left side of the neck, extending from just above the clavicle for two and one-half inches upward. On operation it was found that the tumor was so intimately connected with the phrenic nerve that the latter had to be divided in order to remove the growth. On division no symptoms were observed save that the respirations increased six to the minute. Before closing the wound the ends of the nerve were reunited by silk sutures. The resultant paralysis of half the diaphragm seemed to impair in no wise his good health. Experimentally in eighteen cases in which the phrenic nerve was exposed during operations on the neck the writer has pinched the nerve with the following results: Each time the corresponding side of the diaphragm contracted, producing a sudden and decided abdominal rising immediately below the costal region. In two cases the patient complained of pain in the region of the diaphragm, which subsided before the end of forty-eight hours. Sneezing, coughing and hiccoughing were entirely absent in all the cases.

In experimenting upon dogs, after the nerve was exposed the interrupted electrical current was applied, the nerve pinched with forceps, and then either revulsed or resected. The effects of these procedures were carefully noted. Post-mortems were conducted from one week to four months after division of the nerves.

Only five cases could be found in the literature in which the phrenic nerve was actually injured. Of these, there was only one in which the phrenic nerve alone was injured, and in that case recovery ensued. In the other four cases there were sufficient injuries

to other important structures to account for the unfavorable termination.

The innervation of the diaphragm comes from the phrenic nerve on one hand, and on the other from the intercostal, the sympathetic, and the pneumogastric. The nerve supply of the diaphragm is carefully studied, and the relation of the phrenic nerve to important structures is detailed at length.

The writers conclude:

1. From the clinical and experimental data it would seem that the diaphragm is not an essential muscle of respiration.

2. That as the symptoms commonly described as caused by an irritation of the phrenic were uniformly absent not only in the operation, but in all of the experimental work as well, so it is safe to infer that they may have been due to something other than a simple injury to the phrenic.

3. That while from an anatomical point of view the diaphragm undoubtedly is innervated by branches from the intercostal nerves, this nerve supply is secondary to the phrenic, and is insufficient to carry on the action of the diaphragm after a division of the phrenic.

4. That a division of the phrenic nerve, producing a partial collapse of the lower lobe of the lung on the affected side and an atrophy of one-half of the diaphragm, might predispose to infection of the lung or be followed by a diaphragmatic hernia.

5. That a division of one phrenic nerve in man, resulting in paralysis of one-half of the diaphragm only, is not necessarily fatal.

* * *

CONGENITAL CYSTS OF THE TONGUE. J. W. Cousins. *British Medical Journal*, March 1, 1902.

Congenital cysts of the tongue usually occur in the middle line between the geniohyoglossus muscles or between the geniohyoglossus and the myohyoid. They usually have their origin in the accidental displacement of some epithelial structure, a portion of the epiblast being folded in and shut off from the external surface at some period in early embryonic life. Their lining is always of true squamous epithelium, unless it has been modified by necrotic and suppurative changes. Tumors of this kind feel elastic and tense on palpation, are generally seen in young adults, and are painless, increasing with the development of the individual. They usually contain soft sebaceous matter, and occasionally hair and solid masses of true dental tissue. They are prone to undergo inflammatory changes, under the influence of irritation from within the cyst or upon its external surface. Under such conditions their contents are very purulent and offensive.

Other tumors of the tongue are nevi and warty growths, pedunculated fatty tumors, while cartilaginous tumors are not very infrequent. Central sublingual cysts projecting into the submaxillary region are also seen. These are true dermoid cysts, and appear in

the position which was formerly the site of a tubular passage lined with epithelium. They are confounded often with other cystic swellings arising from the connective tissue interspaces, often the dilatation of the ducts of the sublingual and submaxillary glands. It is well known that the obsolete canals from which the congenital cysts are developed may remain quiescent for years and suddenly assume activity. The walls of such cysts are thin, and the cysts are prone to undergo inflammatory changes, often rupturing and leaving sinuses which are extremely hard to heal. The treatment for such conditions is to completely excise the cyst or to dissect out any sinuses presenting themselves. The writer has operated on several cases of this kind with complete success.

* * *

ON THE PREVENTION OF NAUSEA AND VOMITING FOLLOWING
ETHER ANESTHESIA. R. J. Hess. *Medical Record*, February
22, 1902.

Since the introduction of ether as an anesthetic various efforts have been made to do away with its disagreeable and dangerous aftermath, nausea and vomiting. With this end in view various drugs have been given—chloretone, camphor monobromate, sodium bicarbonate, and cerium oxalate. Kappler recommends the application of an ice-bag to the stomach. Hewett uses hot water, and some surgeons spray the nose and pharynx with cocaine solution before anesthesia. In many hospitals washing out the stomach with normal salt solution is done for the same purpose. The writer believes that ether is excreted by the mucous membrane of the stomach, producing here an irritant effect, and sometimes causing an acute gastritis, and though this view is not as yet supported by the best of proof, yet it would appear reasonable; therefore, the treatment indicated is to accelerate the excretion of ether, prevent its irritating action in the stomach, and reduce the quantity of ether to a minimum.

Its quantity can be diminished by using it in combination with nitrous oxide and by using a closed inhaler such as Bennett's. To increase its excretion the patient must be saturated by water, so that the ether in the stomach is held in solution, it being soluble in water in the proportion of 1-10.

The writer believes that patients should be allowed to drink freely of water before anesthesia, and that as soon as the effects of the anesthetic wear off, they should be encouraged to drink as much water as possible. This line of treatment was used for a series of cases in Bellevue Hospital, and the results were most favorable.

The author concludes, first, that anesthesia vomiting is due to excretion of ether into stomach, with resulting gastritis; second, that drugs are of no value in prevention of the treatment of this vomiting; third, that the combined use of nitrous oxide and ether gives the best results; fourth, that water should be given in large quantities immediately before and after anesthesia.

ON THE POSSIBILITY OF TREATING MITRAL STENOSIS BY SURGICAL METHODS. Sir Lauder Brunton. *The Lancet*, February 8, 1902.

Impressed by the hopelessness of giving relief to patients suffering from mitral stenosis by the use of any of the usual methods of treatment, Sir Lauder Brunton proposes that the constriction be divided. To this end he has devised suitable instruments and made certain experiments on animals, on cadavers, and outlined further ones, with the hope of establishing a proper technique for the operation and rendering it feasible.

He exposes the heart by the incision of Ninni of Naples, pushes back the lung, opens the pericardium, and with a small knife enters the ventricle. It is a question whether the mitral orifice should be enlarged by prolongating the natural opening or whether the valves should be cut through their middle at right angles to the normal opening. The former plan is, perhaps, the better, but not as easy as the latter. Access to the valves may be gained either through the ventricle or auricle. The writer urges that surgeons should study the operation, and make use of it in suitable cases.

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A STUDY OF THE PRINCIPAL STONE SOLVENTS. H. Vindevogel. *Annales de la Société royale des sciences médicales et naturelles de Bruxelles*, Tome IX, 1900.

The writer of this complete and careful article on the medicinal action of the supposed stone solvents, both in the laboratory and at the clinic, has given his results in the above article. His method of experimentation in the laboratory was to take two series of three tubes each, in which were placed five centigrammes of uric acid. In each series were contained—in the first tube 10 c. c. of 1-100 solution of the drug (solvent); in the second tube the same amount of a 1-200 solution, and in the third a like amount of a 1-500 solution of the drug. The two series of tubes were kept at the temperature of $37\frac{1}{2}$ C., and examined at the end of twenty-four and forty-eight hours, respectively.

In the clinical part of the work patients were put on fixed diet as regards quality and quantity, and their urine examined before and after administration of the drug.

The author concludes that urotropin does not have any constant and certain action upon the elimination of uric acid; second, that piperazine has not realized clinically its laboratory value; third, that urecidine produces good effects, but in small doses it is valueless, and in large ones dangerous; fourth, that the potassium salts seem to be the most efficacious of the drugs at our command.

It would seem that the best solvent is water taken in large quantities, and that the advantages of sending a patient to certain springs is due, not to the composition of the waters, but to the large quantity which they drink, under the supposition that the more they imbibe the more medicine they absorb. The author confesses that the experiments go to show that we have no drugs which are capable of dissolving uric acid in the human organism.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

ON THE TREATMENT OF MALIGNANT NEOPLASMS.

So much work has been done of late, especially in this country, on the etiology of malignant neoplasms, in the hope that, by proving them to be of protozoan origin, some form of internal medication might be originated which offered the probability of a cure, that it will be perhaps of interest to briefly review a few of the recent pieces of work done in connection with the treatment of these growths.

In a discussion at the Academy of Medicine at Paris (*Bull. de l'Acad. de Méd.*, XLIV, p. 601), Lucas-Championnière describes some experiments made by him in treating cancer with an "anticellular serum." The serum used by him was the same as that prepared against "the blastomycetæ found in malignant neoplasms." Wlaeff noticed after his injections in cases of carcinoma of the tongue diminution in size of the tumor and a tendency on the part of the ulcerated areas to heal.

Lucas-Championnière verified these results, and also noted a marked improvement in the general health of the patient, while Paul Berger described similar favorable results in cases of carcinoma of the rectum, tongue, breast, etc., although the results were not lasting, and after a period of apparent improvement the condition progressed as before. Dentin opposed these views entirely, and expressed a great deal of skepticism in regard to there being any efficiency whatsoever in Wlaeff's serum.

Although, of course, there is as yet no real basis of fact in the protozoan theory of the origin of malignant neoplasms, still these results are of interest in connection with the very carefully done work in connection with the treatment of malignant neoplasms carried on by Dr. W. B. Coley of New York.

Coley, in his latest communication upon this subject (*Philadelphia Medical Journal*, 1901), gives the results of his treatment, by the mixed toxins of the bacillus erysipclatis and the bacillus prodigiosus, of a large series of cases of sarcoma and carcinoma. In the case of the sarcomas healing seemed to take place in 50 per cent. of the cases of the spindle-celled variety, but in only 4 to 5 per cent. of the round-celled type, while in the case of the carcinomas no cures were reported, although in several cases the injection of the mixed toxins seemed to be followed by a stoppage or a marked slowing of the process of cellular infiltration for a considerable length of time.

In this article are given the clinical notes of twenty-four cases of inoperable sarcomas of various kinds and occupying various parts of the body, in sixteen of which (where the diagnosis was verified by microscopic examination) the patient had remained from three to eight and one-half years healthy, and with no signs of any

recurrence. According to Coley, the only explanation of the curative, or, at least, slowing effect, that his toxins have upon the malignant neoplasms is that these tumors are of parasitic nature.

The reviewer (T. R. B.) has within the past five years met with two cases of inoperable retroperitoneal sarcoma, each of which showed a wonderful diminution in size following an intercurrent streptococcus infection, and in one of which (the only one in which the experiment was made) the administration of Coley's mixed toxins was followed by a still further diminution in size. This case is still under treatment and under observation.

As to other methods of treatment of malignant neoplasms (besides the only rational method in all cases in which it is possible—their operative treatment and removal) may be mentioned the arsenic treatment devised by Trunnecek and Czerny, and the use of the Roentgen rays.

As to the former method, Turas (*Piseglad lekarski*, 1901, No. 40) reports eight cases of carcinoma so treated with absolutely negative results, while as regards the uses of the *x*-rays in this connection Carl Beck (*Münchener med. Wochenschr.*, 1901, No. 32) reports a case where a recurrent melano-sarcomatous nodule underwent destruction and healing under the application of the Roentgen rays. The time of observation, however, was too short to come to any absolutely definite conclusions in this connection.

According to Hopkins (*Philadelphia Medical Journal*, April 5, 1901), the most satisfactory cases of carcinoma for treatment by the *x*-rays are those of the face and tongue, and the recurrent growths of the breast.

* * *

THE TREATMENT OF NEPHRITIS.

A considerable amount of work has been done recently on the subject of the operative treatment of nephritis by Harrison, Israel, Pousson, and others, and perhaps the enthusiasm of the surgeon has in some cases led others to believe that a method of treatment of nephritis of great value has been inaugurated.

Pel (*Mitteilungen aus den Grenzgebieten der Medicin und Chirurgie*, VIII, Parts 4 and 5) treats the whole matter most carefully and conservatively, and points out the very narrow limits within which surgical interference may be expected to be productive of good in this disease.

He points out that most of the cases which have been distinctly benefited by a nephrectomy show more or less variation from the usual clinical picture of nephritis, and approach the condition of "surgical kidney" in the broader signification of that term, the symptoms of which would be unilateral renal colic, severe hemorrhage from the kidney, marked swelling of one kidney, or fever, and the indications for surgical interference would be anuria, violent pain or intense hematuria.

According to Pel these indications are never met with in ordinary cases of nephritis to such an extent as to demand surgical interference. On the other hand, in cases of marked diminution

of the urinary secretion, when the cause lies in the kidney itself, and not in the blood or in the heart, incision into the kidney may be productive of very good results. And yet the dangers of operation are great, for people in this condition are often extremely susceptible to anesthetics, and death may follow the operation.

Pel, from a careful consideration of the whole subject, concludes "the splitting of the renal capsule, and perhaps also the incision into the renal substance, is only permissible in those cases of acute nephritis or acute exacerbations of chronic nephritis in which, on account of the depression of diuresis, a fatal issue seems probable, and in which internal medication is no longer able to increase diuresis and to ward off impending danger."

These cases, however, are extremely rare, and Pel, rightly we think, thinks that the large majority of cases of uncomplicated nephritis should remain in the domain of internal medicine.

Pousson (*Bull. et mem. de la société de Chirurgie de Paris*, June 12, 1901) reports four cases of acute nephritis in which nephrotomy was performed, in two of which a cure took place, while in the other two there was a fatal termination.

He has collected from the literature fifteen cases of acute nephritis so treated, with eleven cures. In three cases of chronic nephritis the effects of operation were real.

Rovsing (*Hospitals tidende*, January 1, 1902) has operated on nine aseptic and eight septic cases of chronic nephritis, and in all of his operations the patients were relieved of their pains by the renal incision, or the separation of perinephritic adhesions.

Israel (*Deut. med. Wochenschr.*, Feb. 27, 1902) has operated upon fourteen cases of nephritis. Of these, three died, while nine were permanently relieved of their painful symptoms.

* * *

THERAPY WITH THE BLOOD SERUM OF CONVALESCENTS IN THE TREATMENT OF ACUTE INFECTIOUS DISEASES.

Wolger (*Centralblatt für innere Medizin*, 1902, No. 7) discusses in this article the conclusions arrived at by him in this connection, the previous account of his experiments having appeared in the *Centralblatt für innere Medizin*, 1898, Nos. 37 and 49.

The results of his numerous later experiments, as well as the conclusions from his earlier observations, lead Wolger to bring forward the following twelve theses:

1. The local changes occurring in acute infectious diseases (exanthems, pneumonic infiltrations, etc.) are not the essentials of the disease, but are secretory efforts on the part of the organism, whereby greater or less amounts of toxins are eliminated.
2. The heat production of the body is significantly increased (manifesting itself as fever, prodromal and also continuous) by the action of the highly-organized chemical substances of the toxins, produced by the agents of the infection.
3. The efforts at healing on the part of the organism are therefore devoted both to rendering the toxins harmless by chemical

changes and to their elimination from the body. This elimination takes place through all secretions and excretions, through the sweat and through the local changes. In these efforts at elimination on the part of the organism, as a consequence of the increased cellular activity, the heat production is increased, which manifests itself as fever.

4. A very considerable effort on the part of the organism, and one associated with a great drain upon the general condition, is therefore involved in changing chemically the toxins, which again manifests itself as fever, due to the increased heat production.

5. This chemical conversion of the toxins is brought about by a stimulation which the micro-organism itself exerts upon the body, which is thus biologically useful in a high degree, and thus the causes of the disease help mightily in its cure.

6. So soon as the chemical conversion of the toxins has taken place in the presence of those converted toxins all further effects of the micro-organisms cease—toxins can no longer be formed, and healing must take place. We are dealing thus more with bactericidal agents than with antitoxins. If the body cannot bring about this conversion of the toxins, healing along the natural channels cannot take place, for notwithstanding every effort of elimination on the part of the body, new toxins will be constantly formed.

7. After the toxin conversion has taken place the blood serum can be used for therapeutic purposes. If a moderate amount of this converted toxin is injected into the body of a patient suffering with the same disease, the activity of the invading micro-organisms ceases. The agents of infection can furnish no more toxins, but also the conversion of the toxins already formed ceases.

8. From this it follows that a case cured by means of serum cannot furnish an efficacious healing serum, because the conversion of the toxins has not taken place after the injection of the serum.

9. After the serum injection, the body has only to eliminate the toxins still circulating within it, which it easily succeeds in doing. This effort at elimination is the sole ground for the continued, often increased, rise of temperature which occurs after the injection.

10. As no efficacious serum is furnished by cases cured by serum injections, so also there are numerous cases which have healed naturally which furnish no efficacious serum.

11. The cases from which effective serum can be obtained, after healing has taken place, are immune for a considerable time, or always, according to the nature of the disease.

12. The cases which have been cured by means of serum are not immune.

In conclusion, Wolger calls attention to the great improvement in the general condition of the patient immediately after the serum injections, although, of course, the complications that may be present may take a considerable time to disappear. He also speaks of those cases, especially in heavy drinkers, in which the toxins are not rapidly eliminated after the serum injections, and in these cases, when no evidences of toxin eliminations are to be made out, Wolger especially recommends blood-letting.

THE TREATMENT OF ERYSIPELAS WITH SERUM OBTAINED FROM PATIENTS SUFFERING WITH THIS DISEASE.

Jez (*Wiener med. Wochenschrift*, 1901, Vol. LI, No. 35) has tested the properties of blood serum obtained from patients suffering with erysipelas, and has used it several times successfully in the treatment of the disease.

His method of procedure was as follows: From the median vein of a patient suffering with erysipelas several grammes of blood were obtained by means of a Pravaz syringe, and allowed to settle in a cool place. From 1 to 10 grammes of the serum, according to the severity of the condition, were next injected under the skin of the same patient from whom the blood had been obtained. One hour after the injection a rise of temperature was noted, while later the temperature fell, and in the course of from twenty-four to forty-eight hours reached normal. According to the severity of the case and the quantity of serum injected the local condition showed a greater or less degree of improvement, and even a few hours after the injection the redness was less intense, peeling took place more rapidly, and usually in great scales.

The serum apparently had little or no effect upon the albuminuria ordinarily present in erysipelas, while unpleasant symptoms on the part of the heart, stomach or skin were never met with.

In his later cases Jez has obtained his serum in considerable quantities from blisters.

* * *

THE IMPORTANCE OF PROPER DIETARY REGIMEN IN THE TREATMENT OF CHRONIC HEART AFFECTIONS.

Illoway (*American Journal of the Medical Sciences*, March, 1902) discusses this important question, and attempts to formulate certain rules in this connection, a thing which is given very briefly and unsatisfactorily in the text-books on the subject.

That the stomach, however, is of great influence upon the heart has, of course, been recognized by eminent clinicians both of past and modern times, as, for instance, Stokes, Abercrombie, Huchard, Lee, and Potain; but, according to Illoway, it is not the stomach *per se* that exerts this influence, but what is put into it, in connection with the condition in which the stomach is at the time of the ingestion of food. These influences are obviously exerted in two ways—first, by way of the vagus; and secondly, by contiguity, the manifestations of undue irritation of the vagus being either disturbances of rhythm, painful sensations about the precordium, or dilation of the right side of the heart, while as regards contiguity, if the heart is diseased, it cannot drive down the apex into the distended stomach to the extent required by its lengthening out, and the systole becomes imperfect, and the following ones more so, this, of course, being more marked the greater the distension of the stomach.

Illoway then reports several cases in full in each of these connections in which the improvement in symptoms could be distinctly referred to the effect of a properly-regulated diet.

He concludes by stating the dietary principles which apply to

pathological conditions of the heart, which, briefly summed up, may be given as follows :

In cardiac affections the question of food is of momentous import to the patient.

In the matter of regulating the diet for cardiopaths we must be guided :

1. By the well-established facts as to the nature of the various cardiac maladies.

2. By the well-established facts in dietetics.

(1) The cardiac ailments are classified into two great groups—the functional, and the organic. In the first group the disturbances are mainly of an irritative character, *i. e.*, manifestations of an irritation set up somewhere in the system that has extended to and affected the nerves, innervating the heart. Nevertheless, the organ, as a whole, is intact, and competent in most instances to do its work normally, or at least fairly well. In the second group the heart has sustained damage structurally. It has lost thereby part of its pristine strength, and is, therefore, more or less readily impaired in its functioning.

In the first group recovery is the natural outcome; in the second group the question is to husband the strength remaining in the organ so that deterioration, to the extent of incapacity to act in a manner requisite for the well-being of the whole organism, shall set in as late as possible.

With respect to the first group, all irritation, in so far as the stomach is concerned, must be subdued and avoided, while in the second group we must prevent not only irritation, but mechanical interference as well.

(2) The physiology of dietetics has taught us that certain foods are more quickly digested than others; that certain foods give rise to a greater development of gastric and intestinal flatus than others; that certain foods are mainly digested in the stomach, while others tax this organ but lightly; that cooking affects in various ways the digestibility of foods, and that fluids leave the stomach more rapidly than solids.

From these considerations Illoway deduces the following rules :

1. As to foods :

(a) All foods that have bulk must be excluded.

(b) All foods that are flatulent must be excluded.

(c) Only foods that are readily and easily digestible are allowed.

(d) All foods must be so cooked that their digestion is facilitated thereby, not impeded.

2. As to meals :

(a) All meals shall be small, so that the stomach is not taxed too far, nor greatly distended.

(b) The intervals between the meals must be so regulated that sufficient time is given the stomach to empty itself, and to have an interval of rest before the next meal is taken.

The article concludes with diet-lists suitable for functional disturbances and for chronic valvular disease based upon these rules.

REVIEW IN PEDIATRICS.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

LEUCOCYTOSIS IN SCARLET FEVER. J. M. Bowie. *Journal of Pathology and Bacteriology*, March, 1902.

The author presents a very comprehensive article on this subject, the result of an examination of 167 cases, the total number of counts being 714. Seventy-seven differential counts were made to find the relative percentage of the three main varieties of white corpuscles. The following summarizes his investigations:

1. Practically all cases show leucocytosis.
2. The leucocytosis begins in the incubation period, very shortly after infection: reaches its maximum at or shortly after the height of severity of the disease, and then gradually sinks to normal.
3. In simple uncomplicated cases the maximum is reached during the first week, and the normal generally some time during the first three weeks.
4. The more severe the case the higher is the leucocytosis, and the longer it lasts; the slighter the case the slighter the leucocytosis, and the shorter time it lasts.
5. A favorable case of any variety of the disease has always a higher leucocytosis than an unfavorable one of the same variety.
6. The temperature has no effect on the leucocytosis.
7. The polymorpho-nuclear leucocytes are increased relatively and absolutely at first, and then fall to the normal, the lymphatics acting inversely to this. This cycle of events occurs in simple cases within three weeks.
8. Eosinophiles are diminished at the onset of the fever. They increase rapidly in simple favorable cases till the height of the disease is past, then diminish, and finally reach the normal some time after the sum total leucocytosis has disappeared—in short, when the poison has all been eliminated.
9. The more severe the case the longer are the eosinophiles subnormal before they rise again. In fatal cases they never rise, but sink rapidly towards zero.
10. The leucocytes, in complications, go through a cycle of events similar in all respects to that of the primary fever as regards both sum total and differential leucocytosis, and the same laws govern the behavior of the leucocytes in both cases.

In regards to the diagnosis of scarlet fever, the simple counting of the leucocytes gives little aid. A differential count, however, may be of aid, for scarlet fever is one of the few acute infectious diseases where one finds an increase in the eosinophiles early in the disease and the persistence of that increase for some time.

With regard to prognosis, the examination of the leucocytes seems likely to be of some practical value. In scarlatina simplex, if the case be severe and the leucocytosis be high and rising, one may predict a favorable course; and conversely, if it be low and stationary, one may expect a tedious case. Regarding the differ-

ential count, if the eosinophiles show a relative increase, the augury is good; if they are normal or subnormal after the first day or two, then the case will in all probability be a severe one. Furthermore, as long as a relative increase of eosinophiles is present one cannot be sure that some complication will not ensue; whereas, if the eosinophiles have come down to normal in the usual way, one may be free from anxiety in this respect.

* * *

A NEW SIGN OF INFANTILE PNEUMONIA. Weil. *Revue Mensuelle de Maladies de l'Enfance*, October, 1901.

The author calls attention to a new sign which he has observed in pneumonia—a lack of expansion of the subclavicular region of the affected side. A lack of expansion is also noted in pleurisy and pneumothorax on the affected side, but it embraces the whole side, and is not limited to the subclavicular region. In pneumonia this lack of expansion of the subclavicular region is marked, even though the process is limited to the base. This sign may be seen as early as *the first day*, and lasts through the entire course of the disease. The early appearance of the sign is of especial importance, as the physical signs of infantile pneumonia are frequently delayed. To elicit this sign it suffices to expose the chest and examine patient in the dorsal posture.

The author says that by this sign alone he was enabled to recognize pneumonia in a case diagnosticated appendicitis. By the same means pneumonia occurring as a complication of typhoid and influenza was noted immediately.

* * *

TREATMENT OF INTUSSUSCEPTION IN CHILDREN. Bernard Pitts. *British Medical Journal*, September 7, 1901.

1. Try inflation only when the case is seen early—within a few hours of onset—and is not of a very acute character. In the great majority of hospital cases it is best to open the abdomen at once.

2. Inflation, however, may be tried in certain other cases for the purpose of reducing the main portion of the intussusception and enabling the incision to be made directly over the cecum.

3. When reduction is found impossible in chronic cases a resection may be generally done through an incision in the ensheathing bowel.

4. In acute cases, and especially if gangrene is present, or the condition of the bowel requires the removal, a wide resection should be undertaken as rapidly as possible, and the ends brought outside the abdomen. Continuity should be restored at a subsequent operation.

5. In exceptional cases of enteric intussusception resection and immediate restoration of continuity gives the only chance.

A CASE OF ACUTE HEMORRHAGIC NEPHRITIS. Miller. *Archiv. Pediatrics*, January, 1902.

The writer reports a case of this disease in a child thirteen months old. The disease was well marked, and the urinary examination showed albumen, blood, and numerous casts.

Nephritis is a rare complication of influenza, occurring in young adults and children, and in infancy is almost unknown. No mention whatever of it is made by Monti, Ashby and Wright, or T. M. Rotch in their several text-books. Henoch has never seen a case in an infant. In the German collective investigation only once was an accompanying nephritis reported in a child. Albumenuria is more common, and is probably present in all severe cases. Senator met with it eighteen times in fifty-two cases. Hematuria alone is not infrequent, and, like nephritis, is seen oftenest in early life. The sexes are affected equally. The nephritis may appear early in the influenza or at varying periods after the acute symptoms have subsided. It is usually an early complication, occurring in one-half the cases within eight, and in two-thirds of the cases within twenty-one days of the commencement of the influenza. The clinical type varies. It may be that of an ordinary acute nephritis, but in the majority of cases is of the hemorrhagic type, this form being especially frequent in young adults and children. Edema is absent in more than half of the cases, and is apt to be slight. The onset is usually attended with fever. The nephritis is of short duration, generally lasting under three weeks. The prognosis is good, recovery being the rule, although a small number of cases pass into the chronic subacute stage. When influenza attacks those whose kidneys are already diseased it is apt to be serious and fatal. From the meager pathological reports, the lesions appear to be those of an infectious or toxic nephritis, often taking the form of a glomerulo-nephritis.

The author concludes the paper with a *résumé* of thirty-nine reported cases of influenzal nephritis.

* * *

PNEUMOCOCCUS PERITONITIS IN CHILDREN. C. Michaut. *Gaz. des hospitaux*, 1901, No. 38.

Michaut made an exhaustive study of pneumococcus peritonitis. There are thirty-three cases described. This form of peritonitis occurs at all ages, except in the new-born. The statistics show fifteen cases at from two to five years. The season of the year and the general condition bear no relation to the attack. Previous peritoneal disturbances, as occur in adults, play no part in children. In two cases abdominal trauma was elicited. The most important cause is the existence of some other pneumococcus disease, to which the peritonitis is secondary. Without doubt, however, there exists a primary pneumococcus peritonitis in children. It must be remembered that even in healthy children the mouth frequently harbors pneumococci, which can give access to the peritoneum by the lymph or blood channels.

Anatomically there are to be distinguished two varieties—circumscribed or encapsulated, and generalized peritonitis, the latter embracing a diffuse septic and a purulent form. In the primary encapsulated peritonitis the disease begins quite suddenly with severe abdominal pains, vomiting, and usually diarrhea, in contrast to the constipation, fever, headache, but no chill. The pain soon subsides, and the vomiting is not so persistent as in other forms. On the other hand, the diarrhea is more persistent. After the appearance of the physical signs the author distinguishes a period of meteorism, the peritoneal effusion, and the breaking through of the latter. As soon as pus appears in the abdomen it has the tendency to break either into the intestine or towards the umbilicus, which is one of the modes of spontaneous recovery. But to await this issue in most cases means a fatal termination from cachexia.

In contrast to the primary form, the secondary variety sets in slowly in the course of a pneumonia or broncho-pneumonia with or without pleurisy. Generalized pneumococcus peritonitis shares the severity of every non-encapsulated peritonitis.

Michaut discusses the differential diagnosis of this form of peritonitis. The secondary variety is to be differentiated from the tubercular form. The latter is usually preceded by emaciation of the patient, alternate diarrhea and constipation, peritoneal thickening on palpation; the fistula when formed is for the most part pyostercoral.

Appendicitis may likewise be confounded with the disease in question, as may typhoid in its earlier stage.

In encapsulated peritonitis the prognosis is good. Therapeutically, surgical interference is always in order.

* * *

THE ETIOLOGY AND MORBID ANATOMY OF TUBERCULOUS MENINGITIS. Cantley. Society for the Study of Diseases of Children. *Archives of Pediatrics*, February, 1902.

Cantley's paper is based on the post-mortem and clinical records of the last twenty-seven fatal cases under his care. Twenty-two occurred in children under five years of age, and only five during the next five years of life. Three were infants under one year of age. A family history of tuberculous disease was only present in five cases. The influence of heredity might be summed up as consisting of exposure to infection of weakly or predisposed children. In only two instances was the disease limited to the meninges. In twenty-three the mediastinal glands were caseous, and in four of these the mesenteric glands were also affected. In the other two there was no note as to the condition of the glands. Injury was a possible exciting cause in only one case. All the evidence was strongly confirmatory of the view that the main channel of infection was the respiratory tract, and opposed to the view that infection could have been acquired from the consumption of tuberculous milk. In twelve instances there was old or advanced tuberculous

disease of the lungs. In nine others the lungs were involved. Two of the instances in which the mesenteric glands were caseous could be easily explained as the result of intestinal infection by swallowed sputum. One of the cases in which the tuberculous process was limited to the meninges depended upon caries of the cribriform plate of the ethmoid.

* * *

A CONTRIBUTION TO THE STUDY OF AMEBIC DYSENTERY IN CHILDREN. S. Amberg. *Bulletin of the Johns Hopkins Hospital*, No. 129.

Amberg reports five cases of this disease in children ranging from two and one-half to five years. A factor of interest is the grouping of the cases. In two instances the disease befell members of the same family (brothers) exposed to the same influences: two were playmates living in close neighborhood and drinking from the same contaminated sources. Clinically, the cases were of moderate intensity. For the most part there was little discomfort—pain was absent or very slight. In two cases there was a prolapsus recti. In none of the cases was there any sign of involvement of the liver. The reaction of the feces was mostly alkaline, seldom slightly acid. The diagnosis was based upon the finding of motile ameba containing red-blood corpuscles. Charcot-Leyden crystals were found in the feces of all but one case; eosinophile cells were also present in large numbers. In four of the cases there was a varying degree of anemia, which is more marked in the deficiency of hemoglobin than in red-blood corpuscles. In all cases there is a leucocytosis, although not marked, the increase being in the polynuclear neutrophiles. No definite relation could be found between the eosinophile cell in the feces and the number of these cells in the blood.

In concluding, the author states that if in the passages of a child, at least in this part of the country, Charcot-Leyden crystals are found, the possibility of amebic dysentery must always be considered. A complete bibliography of the subject is appended.

* * *

A CASE OF GANGRENE FOLLOWING SCARLET FEVER. Suebert. *Münch. med. Wochenschrift*, No. 2, 1902.

Eichhorst has called attention to gangrene of the upper and lower extremities in infectious diseases, and comments on the great rarity of the disease after scarlet fever. Therefore the case reported by Suebert is of great interest.

The patient, a child, seven years old, had a light attack of scarlet fever, which ran an uneventful course. A few days after beginning desquamation the left leg began to swell, and by degrees various areas of gangrene appeared. The necrosis became so extensive that a hip-joint amputation was necessary to save the child's life. Cultures made from the leg showed the presence of streptococci.

In all the reported cases of a similar nature the left leg was always involved.

Society Reports.

BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.

MEETING HELD MONDAY, MARCH 10, 1902.

THE meeting was called to order by the president, Dr. J. L. Ingle. The minutes of the last meeting were read and approved.

Dr. Randolph Winslow: "A Case of Tubercular Peritonitis, Laparotomy, and Recovery."

I first want to show a specimen that, unfortunately, came into my possession today. It is a specimen from a patient upon whom I did a gastro-enterostomy for cancer of the pylorus on Saturday last. The man, like a good many others, did well until he died. I have here the specimen showing the cancer at the pylorus and the operation which was done, in which the two Murphy buttons used are here in position. Here is the small intestine attached to the posterior wall of the stomach, and here the two portions of the jejunum, in order to prevent bile from regurgitating into the stomach. At 4.30 this morning the patient was thought to be doing well, but a few minutes afterwards he was dead. I think there must have been a thrombus, embolism, or something of that kind. The conditions were these: At the pylorus was a mass which occluded the stomach opening, so that food collected in the stomach and after awhile would be regurgitated, perhaps a quart at a time. The man was sixty-three years of age, had been living on his tissues for some time, and was consequently in such a weak condition that I did not deem it proper to attempt to remove the growth, although it could have been done readily, and perhaps it would have been as well to have done so. There were a few small nodules scattered over the anterior surface of the stomach also. I did not attempt to remove the growth at all, but did a gastro-enterostomy. The operation, so far as technique is concerned, is certainly perfect. The intestine was cut across near the junction of the jejunum and ileum, and was brought up here to the posterior wall of the stomach, so that food might pass at once from the stomach into the small intestine. The other limb of intestine was then attached to the loop that we pulled up, and made an anastomosis between the duodenal end of the small intestine and the far end, so that the bile and pancreatic juices might pass on into the descending loop instead of going up into the stomach. The man had no pain after the operation, nor vomiting. He appeared to be doing perfectly well, and was talking to the attendant early this morning, but a short time afterwards he died, so that there must have been some complication, such as heart-clot or embolism, or he simply gave out. There was nothing to indicate any trouble in the abdomen. In the absence of a systematic post-mortem examination the cause of his death must remain problematical.

I did yesterday another operation for a similar condition, and simply at-

tached the intestine to the front of the stomach by means of the Murphy button, as there was quite an extensive, diffuse carcinoma, and this patient is doing very well today.

Case of Tubercular Peritonitis.—This youth came into the hospital August 11, 1900, a year and one-half ago. He had been in good health at the institution from which he came until in the summer of 1900, when he was taken with febrile symptoms, his temperature being lower in the morning and higher in the evening. He was sent to the hospital and kept in bed a number of days, his temperature chart suggesting typhoid fever. At the hospital the suspicion of typhoid fever was intensified by the fact that the Widal reaction was said to have been positive. Now, here was a case with a temperature of the typhoid kind, lower in the morning and higher in the evening, with some abdominal tenderness, and some diarrhea. Father living and in good health; mother living; one sister and one brother in good health. No history of malignant trouble. Has had measles, mumps, and scarlet fever when quite young. Claims to have had typhoid fever about three years ago, when he was in bed about six weeks. This latter fact we did not know at the time he was admitted. About four years ago he had attacks, in which he would get dizzy and lose consciousness, and remain so far about an hour. This would occur as often as three times a week. He has not had any of these attacks for several years. In August, 1900, he was attacked with pain in the back while at work in the shirt factory, and had to stop work. He could not move himself without a great deal of pain. Had no appetite, and lost a good deal of flesh in a few days. He was kept in the hospital at the House of Refuge for several days, and then was brought in here, with a temperature of 101° and a pulse of 112. The Widal reaction being positive, and with tenderness of the abdomen, diarrhea, and emaciation, he was treated for typhoid until his temperature dropped suddenly, and it was thought that there was perforation. Previous to this we had been having frequent blood-counts made, and no marked rise of leucocytes was found—15,000 or 16,000 at one time—and on having a number taken in one day we found the count falling rather than rising. He was taken in the middle of the night with severe pain in his abdomen, which was very tender. There was some fluid in the abdomen, and we thought probably we had to deal with a perforation, and so I was sent for in the middle of the night, and found him in a critical condition.

A laparotomy was done at once, and much to our surprise we found no evidence of typhoid fever whatever, but his peritoneum extensively studded over with tubercles. A considerable amount of ascites was evacuated, and the wound left open and drained with gauze. I did not expect the boy would live through the night, and was considerably surprised to find him alive the next day. The fluid from the peritoneum did not show any tubercle bacilli. He had, however, tubercular peritonitis. The sinus healed slowly, and did not close entirely. The granulations were soft and flabby, and easily broken down. He was irrigated with a lotion of iodine. He was sent back to the institution with the gauze still in. In January, 1901, he came back to the hospital. The sinuses were curetted out, and the right rectus muscle was

cut across, as one of the sinuses ran in it, and would not heal. A large amount of tuberculous tissue was found. It afterwards became necessary to cut across the other rectus muscle in the same way. In the course of time we succeeded in healing these sinuses. The boy is here before you. As you will see from the chart which I will pass around, the temperature is very suggestive of typhoid fever, and the idea of tubercular peritonitis was not entertained at all until after the opening had been made. Perhaps if proper attention had been paid to the statement that he had had typhoid three years previous not so much importance would have been attached to the positive Widal reaction, as it is well known that this reaction may be had quite a long while after such an attack. I thought there was no doubt that we were dealing with a case of typhoid fever. After operation his temperature rapidly fell, and then was subnormal for some time. It has been a year and one-half since the operation now, and you can see that the boy doesn't look very tuberculous now. He is in good health, but you see he has an abdomen that has been pretty badly used up, and which requires him to wear a bandage of some kind on account of hernia, which has already developed to some extent. It is as fortunate for the boy that the operation was done as though the diagnosis had been correct, or more fortunate, for if the diagnosis of perforation had been correct the boy would probably not be here now. It is well known that cases of tubercular peritonitis are not infrequently cured by operation—the opening of the abdomen and exposure to air and light. In this case not only was the abdomen exposed, but also well drained for quite a long time.

Dr. Brinton: I have had three patients with tubercular peritonitis operated on for the purpose of curing them, but they all died within a week or two after the operation. If I am not mistaken, I have within the past few weeks read that the operation for the cure of tubercular peritonitis is not any longer sanctioned. I am glad to see this case, as it is the first one I have ever seen benefited by operation.

Dr. Winslow: I have not looked up the matter particularly of late. I know that it was only recently that it was regarded as the proper operation, and I am not aware that professional sentiment has changed in regard to it. Certainly if one case in fifty recovers on operation, it is a proper procedure, for it is, so far as I know, the only way in which they ever do recover. This is the second case I have operated on, and the other one was done deliberately, believing that it was a case of tubercular peritonitis, and it was found to be a case of post-peritoneal tuberculosis. That patient died.

Dr. Brinton: That was my own impression until I read recently in one of the journals that the operation for the cure of tubercular peritonitis was being abandoned by the men who had been doing it.

Dr. Winslow: In one other case where I operated for intestinal obstruction the intestines were found to be covered with nodules that had every appearance of being tubercular, and the patient is in good health now. The nodules upon the intestine were distinct and of a pearly-gray character. She was a thin, spare woman, and made an uneventful recovery.

Dr. Pennington: "The Treatment of Tuberculosis with Urea."

Dr. Pennington said that his attention had been called to the treatment of tuberculosis with urea by reading an extract from a paper published in the *Lancet* by Dr. Henry Harper on this subject in March, 1901. Dr. Harper reported nine cases treated with urea successfully. He claimed to have found, in looking over his notes of the family history of his patients, that families showing a marked tendency to gout, gravel, and calculus rarely suffer from tuberculosis, and quoted Harris and Beal, in their work on "Pulmonary Tuberculosis," as saying: "We have ourselves seen a complete arrest or cure of pulmonary tuberculosis, considerably advanced, in a case of a patient who suffered severely from an intercurrent attack of gout." He believes the immunity to tuberculosis found in some persons is due to the kind of food taken by them—food rich in albumen, and highly nutritious, supplying the system with a greater amount of urea and uric acid, urea possibly being an antitoxin to the germ of tuberculosis.

Dr. Pennington said that in his practice he could call to mind two cases that would bear out this theory—one case, a lady who lost her mother, two brothers and a sister from tuberculosis, she having nursed her brothers during a period of long illness, and at a time when it was not thought necessary to disinfect the sputa. She had always been a hearty feeder, living mostly upon highly nutritious food, rich in proteids, as a result of which she has long suffered from an excess of urea and uric acid in her system, being highly neurasthenic, and at times rheumatic. But she has entirely resisted the infection of tuberculosis.

The other case, a lady, lost her husband and three children from tuberculosis, all of whom she nursed during their illness, extending over a period of five or six years. She, too, was of a uric-acid or rheumatic diathesis, and escaped infection.

Dr. Pennington said that he had at the present time two cases of consumption under treatment with urea; one, a Mrs. M., aged thirty-nine years, white, married nineteen years, has had three children, the youngest child being fourteen years of age. She lost one brother at the age of twenty-two, and one sister at the age of twenty-eight, with consumption. Her father and mother living, and healthy. Three years ago she had a profuse uterine hemorrhage, from which she was extremely exhausted. Shortly thereafter she commenced coughing, and did not fully recover from the exhaustion caused by the loss of blood. Her expectoration soon became purulent, and upon examination showed the presence of the tubercle bacilli; in short, she developed all the symptoms of incipient tuberculosis, the apex of the left lung being the seat of the trouble. She was put upon creosote in increasing doses and good food, and advised to live as much of her time as possible in the open air. She continued much in the same condition, at times seeming to gain something, and again failing, until last October. On the 13th I commenced giving her urea in 10-grain doses, three times a day, and within one week there was a marked improvement in her condition. She stopped having fever, her cough became better, her appetite improved, expectoration was less, her strength improved, and, indeed, in about three weeks she de-

clared herself well. Of course, she was not well, but she was feeling so much better than she had been for three years that she really felt well. During this time an acute attack of rheumatism came on in her shoulder, and on stopping the urea for a few days it passed off. As she became better she relaxed in taking the medicine, and improvement in her condition ceased. She is at present taking 20 grains three times a day, and is again improving. The second case has not been taking the urea long enough to enable us to say much about the result. In addition to giving the urea, the patient is advised to eat as much of kidney, liver, brain, and beef as possible, and to live in the open air most of her time.

Dr. Pennington said he simply brought the subject up, hoping to bring out in the discussion some facts in regard to the physiological effect of urea in health and disease, rather than to claim a new cure for tuberculosis.

Dr. C. Urban Smith: I would like to ask the doctor if he has not seen chronic interstitial nephritis exist along with tuberculosis. I am sure I have, and if an excess of urea in the system would cure the tuberculosis, I should not think they could exist together. The patient would succumb quicker to that condition than to tuberculosis. I have a case now in which tuberculosis developed after chronic interstitial nephritis that had existed for ten years. It seems to me that would combat the theory that if the system were saturated with urea it would prevent the tubercle bacilli from taking hold.

Dr. Pennington: In answer to Dr. Smith I would only say that my experience with the treatment has been limited to this particular case. Dr. Harper claims that tubercle bacilli will not grow in a culture impregnated with urea. Of course, whether urea retention in the system would prevent the growth of the bacilli I cannot say, as this is the only case in which I have tried it. She improved more rapidly under that treatment than with anything else.

Dr. Smith: I would like to suggest that it would be interesting to make a solution of urea that would destroy tubercle bacilli, and then ascertain if it could be administered in that percentage without causing uremia.

Drs. Stevenson, Rowland, and Keown: "The Serum Treatment of Tuberculosis; Report of Cases."

Dr. H. B. Stevenson: I mentioned a few days ago that I had been treating a case of tuberculosis with the serum, but I had not intended to report the case at this time.

The case came into the hospital with typhoid fever on October 18, supposed to be in the thirteenth day of the disease. He was treated by Dr. Streett, and progressed very nicely over a variable course, but about the middle of November developed a running temperature, rising every evening. On the 10th of December, his sputum being examined, was found to be loaded with tubercle bacilli. On leaving the hospital, November 28, he placed himself under my care. Both lungs were involved; his temperature was 99°-103°; his cough was intense, coughing all the time; his normal weight had been 160 pounds, and he then weighed 130; his sputum was loaded with tubercle bacilli. On the 24th of December, having heard from Dr. Rowland of his success in a case treated with the serum, I started to use it in my case, be-

ginning with eight-minim dose, seeing him every day for four or five days. On the 28th of December he had his last night-sweat. I increased the dose one minim every other day until the first day of January, after which I increased it only one minim every fourth day until the 20th of January, when he was taking 18 minims. The cough at that time had not disappeared. I sent him in to Dr. Streett on the first of February, at which time the physical signs had all disappeared. He gained from the 24th of December to the 10th day of January, sixteen days, nineteen pounds in weight. His temperature went to normal on the 27th of December. On January 4th he had a rise in temperature, and I found that he had a large abscess of the rectum, which I opened, and the next morning his temperature was normal again, and remained so until the 10th, when he had a pronounced chill, and his temperature went up to 100.2° . I put him on quinine, and in a day or so his temperature was normal again. Up to the 7th day of this month, when I saw him last, his temperature remained normal. He went to work. He is a fireman, and fires two boilers. Says he has no discomfort whatever. I am seeing him every fourth day, and he is taking 22 minims of the serum every fourth day. On the 16th of February he complained of feeling badly, and was not well for the next two days. On questioning him I found that he had put the serum outside the window, and it had frozen and then been thawed out. Whether that had anything to do with his illness or not I do not know. He at the same time had a profuse diarrhea that lasted for two days. On new serum he got all right, and has been improving ever since. He still has a few tubercle bacilli in his sputum, but he has gained twenty-two pounds since I first commenced the treatment, and now weighs 152 pounds.

Dr. Rowland: The only case in which I have used the treatment successfully occurred so long ago, and having been unable to repeat the good results in that case, I had not intended to report it. I have, however, treated several cases with the serum. The first and only successful case I had is worth reporting.

I was called to see the case, a girl I had known from childhood and whose family I had known all my life. It was a perfectly healthy family, with no history of tuberculosis at all. The girl was living in the country, in the hilly portion of Cecil county, her home itself being on a hill. She was about thirty years of age, and her previous history was very good. I saw her in the spring of 1899, but not professionally. At that time she said she had a slight cold. It was some time in April or May, and I did not prescribe at that time. In June I was asked to see her, and found her evidently suffering from tuberculosis. The case seemed to be one of intense infection. There was considerable loss of flesh. Normally she had weighed 130 pounds, but had lost a great deal. She had night-sweats, and a very distressing cough. In the evening of each day there was a rise of temperature to 101° or higher. The cough was so intense and troublesome that she could not sleep; she was rapidly emaciating, and was going down very rapidly. I suggested the usual remedies, and believe my instructions were carried out faithfully, as the family was a very intelligent one, and she was under the care of a very capable physician. In August I found that she had declined very rapidly.

The girl was then weighing only ninety or ninety-five pounds, and was growing rapidly worse. The temperature was 101° to 102° every evening, and the other symptoms—night-sweats, cough, etc.—were still present. Just about that time there appeared in the *Journal of the American Medical Association* two articles, both praising very highly the merits of the serum. As the case was so rapidly growing worse, I suggested that if there were anything in these articles the serum offered a chance for relief. It was the latter part of August before I could secure the serum, and then it was given. It was begun with doses of 2 minims the first day, and increased one minim a day up to 20 minims. It was kept at this until it had been given for a month or six weeks. Ordinarily it is begun with 5-minim doses, and increased rapidly up to 20 minims, then a rest given. We followed the directions on the bottle, except that we ordered smaller doses at first, as it was claimed that sometimes unpleasant reactions occurred.

The first report, about a month after the treatment was begun, was a very agreeable one. The temperature was almost normal, the cough was less, and the progress of the emaciation had been checked. The girl was able to go about, and could sleep some at night. The case gradually improved, although the bacilli remained present in the sputum for some months. She took the treatment, except for 10-day intervals occasionally, for about nine months, at the end of which time the bacilli had disappeared, the cough had absolutely disappeared, and the girl was weighing 135 pounds, which was more than she had weighed before becoming sick. She is now in good health, and is working.

If the girl had been taking nothing but the serum this would be a remarkable case, but she did not stop any of the other treatment that had been prescribed. Up to the time of the beginning of the serum treatment she did not improve, and from the beginning of its use she did.

In the other cases in which I used the serum such success was not attained. There was quite an amount of lung destruction in these cases, and nothing is claimed for the serum under such conditions. Where destructive lesions are present to any great degree the serum seems to have but little effect. All these cases were in an advanced stage. One of the bad effects which it had in all except the first case is that it caused at the point of insertion, and all about it, an intense edema—no pain, no serious symptoms, except this swelling near the point of insertion. I understand that this is not so of the newer serum.

Dr. Keown: Some two years ago the use of the serum was called to my attention, and as we had at that time at St. Agnes six cases of tuberculosis, I decided to try it. One of the tests demanded at that time was the test with Koch's tuberculin. I used it, and got a reaction in all six of the cases. Three of them had cavities, and were in the advanced stage of the disease. The fourth one had had the disease for a long time, I think about two years, and was rapidly going down, and the fifth and sixth cases were in practically good condition. One of them showed a slight lesion in the infraclavicular space on the right side, the rest of the lung seeming to be fairly normal. The sixth case was that of a young boy, who had been in the hands of other

physicians, and pronounced tuberculous. I could not find anything but a slight hyperresonance at the right apex, but on the injection of the tuberculine got a decided reaction within eight hours. This boy I continued to treat for five months. At the end of the fourth month I got a slight reaction with tuberculine; at the end of the fifth month I could get no reaction at all, and since then he has been well, and seems to be getting along nicely.

The case that had the small lesion in the infraclavicular space on the right side gave no results for two months. The injections were given every day, except with slight intermissions. In the third month the patient gained fifteen pounds; during the fourth month there was a corresponding gain. Then, for some reason, she refused any further treatment, insisting that she was well. I could not induce her to continue the treatment, but I have heard from her since, and she is doing well. These were the only cases in which I got good results. I think these two cases were practically cures. The other cases died, although I got fairly good results with them; the expectations held out for the serum were realized; the night-sweats and the cough were relieved, but there were no permanent results. Nothing whatever is claimed for the serum in cases where there are cavities. On the other hand, it is claimed that in cases where there is a limited amount of consolidation 40 or 50 per cent. of them can be permanently cured. The greatest claims for the serum are in the incipient cases of the disease. From a long table of statistics supplied with the serum one would be led to believe that perfect results are had in these cases. So far as my use of the serum is concerned it has been satisfactory in those cases in which claims are made for it.

I have since recommended the serum to a physician in the city in a case of the hemorrhagic form, and he reports that the case is doing remarkably well; that the hemorrhages have ceased since the administration of the serum; that the cough has cleared up and the general condition improved, so that the patient is able to attend to his regular duties of life.

Dr. Joseph T. Smith: I do not think any other disease shows as many vagaries in its activities as tuberculosis, and the experimental results are certainly at great variance. There is no doubt that many of the cases do as well under what might be called normal conditions of treatment—that is, diet, hygiene, fresh air, etc.—as under any others.

I have in mind the case of a young man, an athlete, who came to me one day and said he had been examined by his physician, who told him that he had something in his sputum. I could scarcely believe it, but it was true, and he developed night-sweats, and cough, and had loss of appetite, and emaciation. I sent him to the mountains of North Carolina, and he has been practically restored to health.

I had another case, a woman, who suffered seriously with tuberculous hemorrhages, in one or two of which they thought she would die from the amount of blood lost. She entirely recovered, and lived twenty years after that.

These cases are more or less common to all of us, and it argues to my mind that there are regenerative processes in the body which we do not yet

understand, and that possibly in many cases the remedial agents employed are not at all responsible for the results obtained.

Dr. Stevenson: I would like to say that the case I reported, and which, as I said, is not well, but greatly improved, had nothing else but the serum treatment—no codliver oil, nor anything else, and he continues in an improved condition. He works at a laborious employment from 2 or 3 o'clock in the morning until 8 o'clock at night.

Dr. Richardson: Dr. Hill tried the serum at Mt. Hope in some not very satisfactory cases, and we had some very disastrous results. They all died in about fourteen days after the commencement of the treatment.

Dr. Charles O'Donovan: I would just like to say a few words in regard to this matter. I haven't had any experience with the serum whatever, but I think it is well to remember some few points that would clear the way to a proper use of this or any other remedy for eradicating tuberculosis from the system.

Consumption, when we see it, is practically never a simple case of tuberculosis. Almost invariably there is a mixed infection, and I think that any serum or treatment directed entirely to tuberculosis—admitting that it would be efficient against that disease itself—would not, in all human probability, have any effect at all on the other organisms which are producing, in the vast majority of cases, the symptoms—night-sweats, high fevers, rigors, etc.—spoken of as “hectic.” In all probability a streptococcic or other infection has been engrafted on the tubercular infection, and is playing the great havoc.

It is out of the question to expect any kind of antitubercular treatment to effect an altogether different organism, so you can put these cases out of the record entirely.

Now, let us suppose it is a case of tuberculosis, pure and simple. Ordinarily cases of this kind are met with very early in the course of the disease. We see it in children over and over again, the glandular infections, etc., which can easily be proven to be tuberculous. The possibility of curing these cases is the one that we ought to consider, and, individually, I am prepared to accept the possibility of doing this in some way. I believe it is possible for the laboratories to evolve some specific treatment which will enable the human body to throw off tuberculosis. We have it now in diphtheria and other diseases. Every one of us at some time breathe in tubercle bacilli, and it is only because we are capable of manufacturing something within ourselves to counteract their effect that we do not develop the disease. It is along this line that the work will be done. Whether it is along the line of this serum or something else, it is not possible to say as yet. But let us understand what we are doing. It is useless to try to cure the advanced cases where other infections have been engrafted upon the tubercular condition. It is possible always to prove tuberculosis by the expectoration, or with Koch's tuberculine, and you can be sure that you have not a mixed infection by the charts. These running charts, with high fevers, up and down, are almost invariably mixed infections, and not pure tuberculosis.

EUGENE LEE CRUTCHFIELD, M.D.,

Secretary.

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BALTIMORE, MAY, 1902.

VACCINATION.

WITH the spread of smallpox in the past three years popular interest has been freshly awakened in the practice of vaccination. While its beneficent purpose has been as well served as ever before, it can hardly be said that vaccination has withstood popular criticism as well as most of us hoped. The ancient horrors of smallpox have been forgotten, and the element of contrast being lacking, the occasional mishaps of vaccination have loomed large in the common view. The advent of glycerinized virus seemed to promise that the evil consequences of vaccination would be so far reduced that the road to popular approval must become easy. This promise has not materialized, nor has vaccination ever perhaps been more heavily assailed than during the past few months.

The lay view of the matter is not unreasonable, and the energies of the profession should be bent upon the further perfection of vaccination rather than upon historical argument. The man in the street is influenced chiefly by modern instances near at hand. He believes that seven chances in one thousand to be attacked by smallpox, with two chances in a hundred to die in the attack, yields him a hazard of about one and one-half in ten thousand. The proposition to have a non-fatal variola seems to him a fair stand-off against a successful vaccinia. He knows nothing about variola, but he does know something about vaccinia, and he is not altogether foolish in deciding that the chance of mishap through vaccination is greater than the chance of attack divided by the chance of death from variola. You cannot make the average layman consider the statistical tables. He has his own statistics, which may be ever so bad, but they are his.

Since his observations upon vaccinia may cover in a time of smallpox invasion something like 30 per cent. of his acquaintances, the surest way to lead him to reasonable conclusions is to show him the cleanest and most innocent vaccinations that can be produced.

It is a grave disappointment that glycerinized virus has not cleared up for us this thorny road. Undoubtedly this material is distinctly better than the older forms of virus, and we shall not return to former methods. There has

always been theoretical objection to glycerinized virus on the ground that a substance which dehydrated and killed the accidental organisms of vaccine pulp might be expected to weaken the specific agent. Experience soon showed, indeed, that glycerinized virus is rather less stable than the dried points, but during the period of its activity produces reactions as characteristic and immunity quite as definite as any other form of virus. The manufacturers appear to have erred in two directions. Guided by the laboratory studies, they for a time apparently overrefined their product, marketing a virus which had a rather short period of effectiveness, and was unfit to survive unavoidable adversities in distribution.

Reports of feeble and ineffective virus moved the manufacturers to shorten the period of "ripening," and as this time was more and more abridged, they marketed what seemed to be a distinctly "green" virus, which produced reactions violent enough to satisfy the most exacting. And here another fault of some producers was uncovered. This green glycerinized lymph was often found to excel in bacterial contamination the virus of the dry-point maker. The handiest explanation of this circumstance would seem to be that the makers have been so impressed with the influence of glycerine as to have allowed an initial contamination of the original material considerably higher than is consistent with good technique. In other words, they seem to have depended at one stage of the manufacture upon glycerine rather than upon brains and skill. Such errors are common in all sorts of scientific work, and they are also always costly.

The first step in the improvement of current practice in vaccination is to be taken, it would seem, by the makers of virus. The operation and the after-care of vaccinations are more closely related to the graver accidents of vaccination, but that is another story, and possibly a worse one.

THE RETIREMENT OF SURGEON-GENERAL STERNBERG.

THE committee on national legislation of the American Medical Association has submitted to Congress a bill to authorize the President of the United States "to select one from the medical officers of the United States Army, who has served forty-one years or longer, nine years of which as surgeon-general," and appoint him a major-general for the purpose of placing him on the retired list.

Surgeon-General George M. Sternberg will have completed forty-one years of service on June 8, 1902, and it is hoped that this bill will be passed before that date.

The memorial which accompanies the bill presents in a very convincing way the claims of Dr. Sternberg upon the gratitude of the country. The merits of this bill should command the recognition of Congress, and should enlist the support of the medical profession upon a bare statement of the official duties and responsibilities of a surgeon-general without any reference to the particular distinction of the present incumbent. In the words of the committee, "the amount of executive capacity and actual work demanded

of the head of the medical department could not be obtained in civil life for five times the remuneration which he receives."

To the successful performance of such high and exacting duties Dr. Sternberg has added services of another sort and of extraordinary value. Combining in a remarkable way executive ability and scientific accomplishments, he has distinctly advanced the cause of public health, and particularly of military hygiene.

The country is deeply indebted to Dr. Sternberg on account of services which were not nominated in the bond, and for which no material reward was asked or expected. The advancement asked for General Sternberg seems justly merited without consideration of these matters, but if full account be taken of his career, it is difficult to see how the recommendations of the committee can be denied.

SOME OF THE ACTS OF THE GENERAL ASSEMBLY.

THE legislature of 1902 passed a number of bills which are of interest to medical men. The medical-practice act, considerably amended, got through in the last few days of the session. At the present writing it is doubtful if anyone knows its provisions. The opposition of the Christian Scientists was silenced by an apparently trifling amendment, but since these people were represented by able counsel, and since their objections were so easily and completely satisfied, one may fairly suspect that the new law lays no restriction upon their practice. It is said that the law allows Christian Scientists to meditate and osteopaths to manipulate for the cure of the sick, but forbids the employment of any more rational or material agency. If so, a representative of either of these fantastic sects may maltreat a fractured limb or a diphtheritic throat with full sanction of the law, but the application of a splint or the administration of antitoxin makes the practitioner guilty of a misdemeanor. In other words, that which is useless or hurtful has been declared lawful, while that which is right and helpful is forbidden. The medical profession can make free use of incantation and massage, but the quacks have granted us a monopoly of true therapeutic methods. How shall we explain to the public our exclusive possession of the right to do right?

The bill to create a Tuberculosis Commission has passed, and the action of the governor is awaited with great interest. This bill was but slightly amended, and was, perhaps, improved by the amendments. If the Commission is wisely chosen, it may turn out that this bill was the most important act of the general assembly of 1902.

The pharmacy bill had better success than its predecessors. Its provisions apply to but a part of the State, but, at least, a good beginning has been made.

An attempt to establish a licensing board for undertakers was stubbornly resisted in the counties, but was successful so far as Baltimore city is concerned.

Mr. Straus' bill to prohibit spitting in public places and in railway coaches and street cars became a law.

Several sewerage bills were offered for Baltimore city. All of them were violently manhandled, and none survived.

Medical Items.

THE cow-stable ordinance of Mr. Eisenbrandt has at last become a law.

THE Union Protestant Infirmary has been reopened. About \$10,000 have been expended upon improvements, bringing the entire building and its appointments up to modern requirements.

DR. J. J. KINYOUN, late director of the hygienic laboratory of the United States Marine Hospital Service, has become director of the biological laboratories of the H. K. Mulford Co. at Glenolden, Pa.

THE expectoration ordinance is being enforced in New York. Of fifty spitters tried in a single week, eighteen were discharged after incarceration for six hours or longer, and thirty-two were fined \$5 each.

DR. EDWARD A. MARIS died at his home, 1400 Linden avenue, on April 20, aged eighty-two years. He was graduated in medicine at the University of Maryland in 1841, and had been in active practice for more than sixty years.

DR. HARRY P. HINCHLIFFE of Elkton died on April 19 of appendicitis. Dr. Hinchliffe was thirty-one years of age, a graduate of the University of Pennsylvania, and had been established in practice about five years. He leaves a widow and one son.

THE Commissioner of Health has wisely agreed to permit a limited number of students, under careful regulations, to see cases of smallpox. Sections of two classes have visited quarentine, one under Dr. Jones and one under Dr. Fulton.

HEALTH COMMISSIONER LEDERLE of New York proposes to expend more than \$1,000,000 upon hospitals for infectious diseases and upon improvements in the old ones. The amount asked for is \$1,025,000, only \$1,000,000 more than has been appropriated for a similar purpose in Baltimore town.

THE American Association for the Advancement of Science proposes to organize a new section of Physiology and Experimental Medicine. The first meeting of this section will be held in Washington, December 29 to January 3, 1903, under the Vice-Presidency of Dr. Wm. H. Welch.

THE regents of the University of New York State have discretion, under a recent act of assembly, to admit to preliminary examination in anatomy, chemistry, physiology, and hygiene students who are nineteen years of age and meet the other requirements. This grants, under certain restrictions, an allowance of the first year's course in medicine.

THE "Zionists" who have been under quarantine for some weeks will be vaccinated. Dowie has issued an order to this effect. The bill of expense against him has grown alarming, if the presence of smallpox has not disturbed him. He owes the Cook County Isolation Hospital \$25 a week for each patient sent from his community, and must pay, besides, \$2 a day to each of four Chicago policemen who have been on duty enforcing the quarantine.

THE United States authorities at Montreal have refused admittance to the United States of 132 out of 25,000 immigrants arriving through the Dominion. This action stirred the Canadian authorities, who feared that considerable numbers of diseased persons might by this means be dumped in the city of Montreal. Investigation showed, however, that but 29 of the 132 had remained in Canada, the larger number having been returned to their native countries.

DR. WM. E. HUGER, JR., who formerly contributed to the department of Surgery in this Journal, died on March 29 of typhoid fever. Dr. Huger was formerly an assistant on the surgical staff of Johns Hopkins Hospital, and a partner of Dr. Hugh Young. He was a graduate of the University of Virginia and of Johns Hopkins Medical School, and had lately commenced practice in Charleston, S. C., with every prospect of marked success. A widow and one child survive Dr. Huger.

AMONG the five persons who died of smallpox in April was an unknown white man who had been abandoned in a railroad-construction camp in Queen Anne county. He was believed to have died on a Saturday afternoon, but no one visited the spot until Monday morning, when the health officials arriving found the man living. He died on Monday afternoon. No one would bury the remains. Accordingly, the building was fired, and the local undertaker buried the remains a day or two later.

SMALLPOX outbreaks have been reported during the month of April in Allegany county, Caroline, Talbot, and Queen Anne. There were five deaths from the disease in April, the largest number in the same period for nearly twenty years. Of these deaths, two occurred in the Quarantine Hospital; one, a hemorrhage case, in Baltimore city; one in Caroline county, and one in Queen Anne. The outbreaks in Wicomico, Worcester, and Somerset have been concluded, no cases having occurred outside the houses first infected.

PROF. W. H. CONN of the Storrs Agricultural College of Connecticut has published the results of his experiments, which have been going on for more than a year, upon the transmission of tuberculosis through the milk of tuberculous cows. He concludes that in the earlier stages of bovine tuberculosis the udder is but rarely involved, and the danger of infection through the milk is very small. Even when the tuberculosis is well advanced the danger of milk infection is less than has heretofore been supposed. The farmer has, however, no means of knowing when the udder is affected, and for this reason Professor Conn believes that every animal reacting to tuberculin should be removed from the herd.

THE one hundred and fourth annual meeting of the Medical and Chirurgical Faculty of Maryland was held on April 22, 23 and 24 at the hall of the Faculty. The attendance at all the sessions was unusually good. At a preliminary session on Tuesday afternoon, April 22, Dr. Wm. Osler gave a lecture on the "Diagnosis of Smallpox," illustrated with lantern slides. The regular meeting opened on Tuesday evening, when the president, Dr. J. McPherson Scott, made an address on "Interstate Reciprocity in the Regulation of Medical Practice." After the president's address there was a "smoker." On Wednesday and Thursday mornings special clinics for visiting members were held at the hospitals connected with the medical schools. The annual oration was delivered on Thursday evening by Dr. James Tyson of Philadelphia, on "The Present State of Our Knowledge of Diabetes Mellitus." The annual banquet followed this address, and was held at Lehmann's Hall. The two scientific sessions were on the afternoons of Wednesday and Thursday. The following papers were read:

Dr. D. C. R. Miller, "Organized Medical Defense;" Dr. Brice W. Goldsborough, "A Contribution to the Treatment of Pneumonia with Antipneumococcus Serum;" Dr. J. B. R. Purnell, "Thermometric Investigations to be Concluded;" Dr. Edwin J. Dirickson, "Medical Legislation;" Dr. Wm. R. Stokes, "Exhibitions of Some Pathologic Specimens from Cases of Smallpox;" Dr. G. W. Dobbin, "The Use of the Magic-Lantern in Obstetric Teaching;" Dr. John Ruhräh, "Concerning the Occurrence of Hyaline Degeneration in the Thymus Gland in Infantile Atrophy;" Dr. H. G. Beck, "A Case of Total Ulcerative Colitis, with Exhibition of Pathological Specimen;" Dr. T. C. Gilchrist, "The Use of the x -Rays and Finsen's Rays in the Treatment of Skin Diseases;" Dr. C. Hampson Jones, "Deaths Due to Tetanus in Baltimore in 1901;" Dr. T. W. Keown, "Neurasthenia;" Dr. J. H. Mason Knox, Jr., "The Leucocyte Count in the Summer Intestinal Diseases of Children;" Dr. F. J. Kirby, "One Method for Operating for Appendicitis Complicated with Abscess;" Dr. Nathan Herman, "A New Method for Breech Extraction;" Dr. W. S. Smith, "Pseudo-Pregnancy—Report of Cases;" Dr. F. E. Browne, "Hydrotherapy;" Dr. Samuel Theobald, "What Means Other Than Operative Have We for Combating Inflammation of the Mastoid Cells;" Dr. Nathan R. Gorter, "A Case of Aneurism of Thoracic Aorta;" Dr. Frank Dyer Sanger, "Report of a Case of Carcinoma of the Larynx, with Specimen;" Dr. V. M. Reichard, "Commercialism versus Professionalism;" Dr. Harvey Cushing, "On the Avoidance of Shock in Major Amputations by Cocainization of Large Nerve Trunks Preliminary to Their Division." At the executive session on Wednesday evening the following officers were elected: President, Dr. Wm. T. Howard; vice-presidents, Dr. Samuel T. Earle and Dr. Wilmer Brinton; secretary, Dr. J. Williams Lord; treasurer, Dr. Thomas A. Ashby; executive committee, Dr. J. McPherson Scott, Dr. Wm. Osler, Dr. Samuel Theobald, and Dr. Aaron Friedenwald; trustee, Dr. John W. Chambers; State Board of Medical Examiners, Dr. J. McPherson Scott and Dr. Edwin L. Dirickson, for four years; Dr. Brice W. Goldsborough and Dr. Eugene Van Ness, for three years; Dr. W. W. Wylie and Dr. Franklin B. Smith, for two years; Dr. Henry B. Thomas and Dr. Chas. F. Davidson, for one year.

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AN EXAMINATION OF MILK SUPPLIED TO INFANTS SUFFERING WITH SUMMER DI- ARRHEA, WITH A PLEA FOR A PURER MILK SUPPLY ACCESSIBLE TO THE POOR OF BALTIMORE.

By J. H. Mason Knox, Jr., Ph. D., M.D., and Victor H. Bassett.

From the Laboratory of The Thomas Wilson Sanitarium.

PERHAPS there is no relationship in medicine more generally accepted by both physicians and patients than that of the association of disorders of the intestinal tract with improper diet. Food ill adapted in quantity or in quality, or in both, to the alimentary canal has been the cause of its disorder since the earliest recorded times. As is well known, of all periods of life that of infancy is the most influenced by alterations in the character of the food. The mucosa of the baby's digestive tract is suited only for the disposal of a very limited menu, and if this differs markedly from the nourishment supplied by the mother, bad results to the infant will surely follow. Fortunate, indeed, is that child which during the first year of life derives its nutriment in large part at least from its mother. The food thus supplied is made up of just the proper ingredients, united in the most advantageous proportions, is properly warmed, and is delivered to the child in a very convenient manner, and, most important of all, it is practically sterile, that is, it contains few of the bacteria which are present in large numbers in cow's milk, and which, by their proliferation, especially in warm weather, render cow's milk unfit for consumption.

It is not proposed here to discuss the various factors probably operative in the production of summer diarrhea in children. Poverty, neglect and bad surroundings all predispose to intestinal disturbance in the child, as do also its tender age and constitution.

It is, however, universally recognized that *improper food* is the chief factor in the production of the tremendous mortality which takes place each summer among very young children. So accustoming is the public to this high infant death-rate in summer that it has become difficult to arouse interest in the measures that are

intended to lessen the evil. In Baltimore in 1900 the number of children under five years of age who died from intestinal diseases during the three months of June, July and August was 633. The total number of deaths among children for the same period was 1288, while during the three months mentioned the deaths from consumption at all ages were 250, that is, half the whole infant mortality during the summer was supplied by infants dying from diarrheal diseases, and that the dreaded "white plague," "the scourge of the race," destroyed in the period mentioned only about one-third as many lives.

If instead of these helpless little people, who have no power of protesting against the wrong done them, adult citizens were destroyed in equal numbers, the public would hardly remain quiescent, but would take radical measures calculated to lessen this loss of human life. In our courts of law the life of the youngest, even the unborn babe, is placed on an equal footing with that of a grown man, and its destruction is equally punished. Yet summer after summer the great court of public opinion permits this "slaughter of innocents" to be repeated without taking any adequate measures to check it. Thus during the year of 1901 the total number of deaths among children under five years of age was 2552. Of this number, 732 deaths, or 29 per cent. of the whole number, were directly due to intestinal disorders, and of these, 633, more than three-fourths, occurred in the summer months. In order to represent this result more graphically the following diagram has been prepared. It will be noted that there is comparative uniformity throughout the year in the death-rate from diseases other than those of the intestinal tract. The fact that there is a slight increase in the mortality in January and July, respectively, would indicate that the severity of the disorders, with the exception of the class under consideration, is not affected by the temperature. The striking feature of the diagram is the marked increase in the line representing the death-rate from summer diarrhea during the middle and late summer.

The temperature in many of our large cities during June, July and August does not of itself produce the rapid increase of the mortality among infants, because babies exposed to precisely the same surroundings, but nourished at the mother's breast, as a rule escape summer diarrhea, and there is no unusual infant mortality from disease other than that of the class under consideration during the warm season; in fact, infants stand hot weather better than adults. Dr. Holt some time ago collected 1943 cases ending fatally from diarrheal disorders, and found that but 3 per cent. of these were exclusively breast-fed. The same writer states "that children among the poor in tenements enjoy immunity from intestinal disease just in proportion as they are breast-fed and just so long as they are so, but as soon as artificial feeding is begun, diarrheal diseases are prevalent." It must be conceded, then, that to bring a child up on a bottle through its first summer requires unusual skill and is attended at best with danger. It is difficult under the

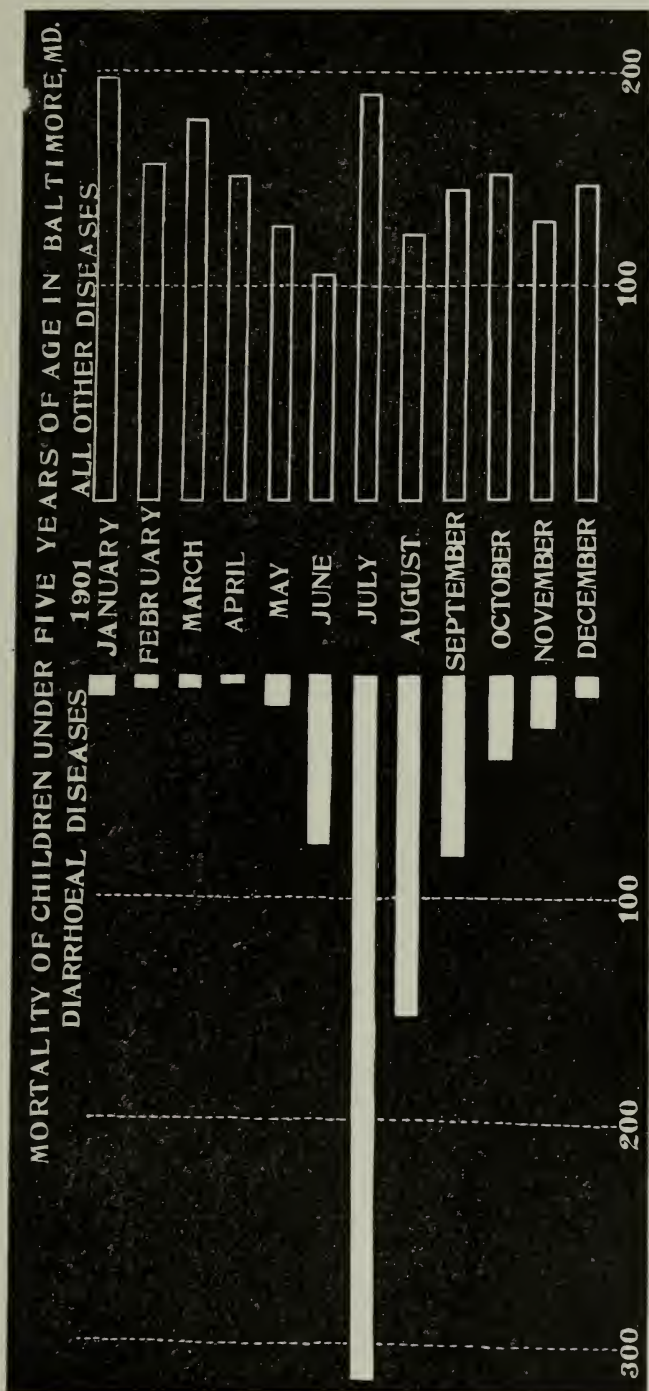


DIAGRAM No. 1.

Showing the mortality of children under five years of age in Baltimore for the year 1901. denotes deaths from diarrheal diseases; deaths from all other diseases.

most favorable circumstances to adapt a nutriment exactly to the needs of the particular baby, yet any great variation from the normal injures the alimentary mucosa, lowers the resistance of the patient to deleterious products, and so renders the infant more liable to intestinal disorders.

Cows' milk, for obvious reasons, must be the main substitute food for children who cannot be nourished at the breast. Of the various artificial foods with which the market is glutted none contain ingredients in the proportions suited to the baby, and many of them are positively harmful. A few can be used to advantage when added to diluted milk. These facts being true, it is of the utmost importance that all children who are artificially nourished, but particularly the offspring of the poor, among whom the greatest mortality occurs each summer, should have pure, properly-modified cow's milk, thus making it as suitable as possible to the weak digestive tract of the baby. Lack of attention to these points brings about a condition of intestinal irritability, the usual precursor of summer diarrhea.

Unquestionably, however, the direct causal factor of most moment in the production of this great scourge among infants is a highly contaminated milk supply. When one recalls that milk is the best culture material for the growth of many kinds of bacteria, and then considers the unhygienic conditions which surround most of the milk supplied to the poor of our large cities from the time it leaves the filthy stable, through all its various vicissitudes, until it reaches the baby, it is not difficult to understand that it may be the bearer of infection and death to the child it is intended to nourish.

While there are very many observations on the quality of milk supplied to our large cities in which poisonous products or harmful bacteria have been found in milk, there are few observations which trace a close connection between intestinal disease, typhoid fever excepted, and a poor milk supply. Of these, perhaps, the most interesting is that of Woodward,¹ who found virulent streptococci in milk, causing intestinal symptoms. Stokes² and others have also demonstrated streptococci in milk. In view of the findings of Booker³ in his studies on the bacteriology of the summer diarrheas, these organisms can be regarded as a definite factor in the causation of certain forms of intestinal infections.

It behooves the public, then, if it would help the less healthy, artificially-fed babies to withstand the summer heat, to supply them with a milk in which the number of bacteria is reduced to a minimum and which contains no toxins, the result of their growth. A product of this nature can be obtained during the warm weather only by great cleanliness at every handling of the milk and by proper refrigeration. That these conditions are not found at present in Baltimore must be well known, but it seems that the very unsatisfactory state of the milk question cannot be thoroughly appreciated either by the profession or the public.

At the Thomas Wilson Sanitarium for Children there were upward of 400 cases of summer diarrhea among the babies of the poor

of Baltimore treated during the season of 1901. In order to have some fresh definite information as to the quality of the milk which the little patients had been given previous to admission, the addresses of the stores where the mothers bought their milk were obtained either from them or from the Sanitarium nurses in the city, and, as our time permitted, samples were taken in various parts of the city and subjected to a bacteriological and chemical examination. It is to be regretted that we were not able during the summer to collect more samples of milk, but those examined came from widely-separated sections of the city, and the results afford at least a fair idea of the character of the milk sold to the poor of Baltimore. It is to be emphasized that we had patients at the Sanitarium suffering from some form of intestinal inflammation who, just before admittance, had been fed on the milk examined.

In order to compare the quality of the milk supplied during cooler weather, in March and April samples were also collected from the same places and examined in a similar manner.

Collection of Samples.—Samples were collected from the parts of the city from which our patients had come, no effort being made to secure especially bad or especially good milk, but rather to secure average samples of milk bought for family use, and which had been used to feed infants suffering from intestinal troubles. The samples were collected in sterile tin pails, information being obtained, when possible, concerning the source of the supply, the methods of refrigeration, dispensing, etc. The temperature was then noted, and the samples at once taken to the laboratory and subjected to analysis.

Bacteriological Analyses.—Plate cultures were made in agar-agar, 1 c. c. of a 1-1000 dilution of the milk with sterile water being used for seeding the plates. The cultures were incubated at room temperature (70° F.) for two to ten days, and the colonies then counted. Observations were made on the plate cultures and also by means of subcultures, and the character of the bacterial flora determined. The samples of milk were then allowed to stand at room temperature, and the time of souring noted.

Chemical Tests.—The acidity was determined by titration with N/10 sodium hydroxide solution, using phenolphthalein as an indicator. Use was also made of Farrington's acid tablets.⁴ A lactometer reading was taken by means of a Quevenne lactometer, correction for temperature being made. Fat was determined by the well-known Babcock method.⁵ From the data thus obtained the total solids were calculated, using the simple formula of Babcock,⁶ and applying the corrections for low fat contents as suggested by him.

Total solids = $\frac{L + 0.7 f}{3.8} + f$, in which L = the lactometer

reading (*i. e.*, the decimal part expressed as units), and f = fat. This and similar methods of determining the total solids of milk are regarded as sufficiently accurate for the purpose of this examination.

The data thus obtained is shown in the following table :

Number.....	SOURCE.	SUMMER SAMPLES.										SPRING SAMPLES.									
		General Condition.	Lactometer Reading 60°F....	Total Solids %.....	Fat %.....	Solids not Fat %....	Temperature F.°...	Lactic Acid %.....	Bacteria per c.c...	Lactometer Reading.....	Total Solids %.....	Fat %.....	Solids not Fat %....	Temperature F.°...	Lactic Acid %.....	Bacteria per c.c....	Lactometer Reading.....	Total Solids %.....	Fat %.....	Solids not Fat %....	Temperature F.°...
1.	General Store.....	Bad.....	1.025	10.1	3.0	7.1	58	0.162	3,329,000	1.027	11.0	3.3	7.7	58	0.207	704,000	1.027	11.0	3.3	7.7	58
2.	Small Dairy.....	Fair.....	1.026	9.6	2.3	7.3	44	0.199	2,480,000	1.018	10.3	2.5	7.8	50	0.135	600,000	1.018	10.3	2.5	7.8	50
3.	Small Store.....	Bad.....	1.027	11.3	3.5	7.8	68	0.180	4,436,000	1.028	12.1	4.0	8.1	44	0.153	1,150,000	1.028	12.1	4.0	8.1	44
4.	Small Dairy.....	Fair.....	1.030	12.6	4.0	8.6	68	0.153	223,000	1.032	14.4	5.0	9.4	42	0.171	381,000	1.032	14.4	5.0	9.4	42
5.	Milk Wagon.....	Fair.....	1.026	10.0	2.7	7.3	70	0.171	860,000	1.028	10.8	2.9	7.9	42	0.153	1,536,000	1.028	10.8	2.9	7.9	42
6.	Confectionery Store.....	Bad.....	1.030	11.4	3.0	7.3	70	0.288	3,000,000	1.032	12.6	3.5	9.1	40	0.162	640,000	1.032	12.6	3.5	9.1	40
7.	Wagon Dairy.....	Good.....	1.031	12.9	4.0	8.9	62	0.171	500,000	1.032	15.2	5.7	9.5	38	0.216	769,000	1.032	15.2	5.7	9.5	38
8.	Large Dairy.....	Fair.....	1.030	10.6	2.4	8.0	62	0.191	2,045,000	1.031	12.9	4.8	9.1	38	0.171	140,000	1.031	12.9	4.8	9.1	38
9.	Large Dairy.....	Fair.....	1.029	10.6	2.8	7.8	74	0.189	5,120,000	1.031	12.9	3.8	9.1	60	0.185	3,904,000	1.031	12.9	3.8	9.1	60
10.	Small Store.....	Very bad.....	1.027	10.5	3.1	7.4	70	0.180	1,216,000	1.031	12.9	3.8	9.1	38	0.185	1,344,000	1.031	12.9	3.8	9.1	38
11.	Small Dairy.....	Very bad.....	1.022	7.7	1.8	5.5	70	0.153	6,056,000	1.028	11.8	3.8	8.0	43	0.149	1,920,000	1.028	11.8	3.8	8.0	43
12.	Small Store.....	Bad.....	1.026	9.7	2.4	7.3	70	0.189	6,144,000	1.028	11.8	3.8	8.0	43	0.149	1,920,000	1.028	11.8	3.8	8.0	43
13.	Small Dairy.....	Bad.....	1.028	9.6	2.1	7.5	42	0.189	5,120,000	1.025	10.5	3.3	7.2	49	0.117	2,688,000	1.025	10.5	3.3	7.2	49
14.	Small Dairy.....	Bad.....	1.030	10.7	2.6	8.1	70	0.234	8,960,000	1.031	13.1	4.2	8.9	48	0.135	448,000	1.031	13.1	4.2	8.9	48
15.	Small Dairy.....	Good.....	1.030	12.1	3.8	8.3	60	0.225	64,000	1.034	13.4	3.8	9.6	41	0.194	224,000	1.034	13.4	3.8	9.6	41
16.	Small Dairy.....	Good.....	1.027	11.0	3.5	7.5	53	0.194	2,952,000	1.028	10.9	3.0	7.9	59	0.162	640,000	1.028	10.9	3.0	7.9	59
17.	Large Dairy.....	Very good.....	1.033	12.2	2.0	8.6	60	0.234	2,197,000	1.033	11.9	2.7	9.2	62	0.189	116,000	1.033	11.9	2.7	9.2	62
18.	Small Store.....	Very bad.....	1.027	11.8	4.2	8.9	60	0.198	4,350,000	1.029	11.7	3.0	8.7	56	0.180	764,000	1.029	11.7	3.0	8.7	56
19.	Small Dairy.....	Bad.....	1.033	12.2	3.3	8.9	60	0.234	500,000	1.031	11.7	2.9	8.2	41	0.153	1,088,000	1.031	11.7	2.9	8.2	41
20.	Dairy.....	Good.....	1.028	10.3	2.7	7.6	46	0.180	4,350,000	1.029	11.1	2.9	8.2	41	0.153	1,088,000	1.029	11.1	2.9	8.2	41
21.	Small Store.....	Bad.....	1.025	11.7	3.7	8.0	60	0.180	2,197,000	1.031	11.6	2.9	8.7	51	0.162	500,000	1.031	11.6	2.9	8.7	51
22.	Confectionery Store.....	Fair.....	1.030	13.0	4.7	8.4	66	0.180	2,304,000	1.030	12.0	3.5	8.5	45	0.162	717,000	1.030	12.0	3.5	8.5	45
23.	Small Store.....	Very bad.....	1.025	11.8	6.3	7.5	69	0.189	360,000	1.027	10.7	3.0	7.7	70	0.171	1,086,000	1.027	10.7	3.0	7.7	70
24.	Dirty Dairy.....	Very bad.....	1.025	11.1	4.0	7.1	64	0.180	3,328,000	1.027	10.0	2.5	7.5	70	0.162	1,100,000	1.027	10.0	2.5	7.5	70
25.	Small Dairy.....	Bad.....	1.027	10.1	2.8	7.3	58	0.198	3,100,000	1.029	11.5	3.3	8.2	51	0.221	248,000	1.029	11.5	3.3	8.2	51
26.	Small Store.....	Bad.....	1.027	9.9	2.5	7.4	69	0.216	14,336,000	1.028	14.2	5.7	8.4	55	0.180	704,000	1.028	14.2	5.7	8.4	55
27.	Small Store.....	Fair.....	1.026	9.0	2.2	6.8	69	0.180	8,448,000	1.027	10.0	2.4	7.6	62	0.153	2,112,000	1.027	10.0	2.4	7.6	62
	Average.....		1.0277	10.88	3.17	7.71	61.8	0.1993	4,447,000	1.0298	12.03	3.64	8.39	51.7	0.1689	1,052,000	1.0298	12.03	3.64	8.39	51.7

General Conditions.—Observations were made upon the general conditions under which the milk was kept. As to its source, definite information could not be obtained in all cases. About 40 per cent. of the samples came from cows kept in stables within the city limits, under conditions which render it impossible to secure pure milk.

Many of the dispensing stations, devoted entirely to the sale of milk, were all that could be desired as regards cleanliness, but many, especially the smaller dairies, were very dirty. Sufficient attention was not given to the vessels used for measurement, which were often allowed to stand at room temperature, covered with flies, and then used to dip out the milk for a customer, thus liberally seeding the milk with organisms which had developed at the high temperature.

Conditions were especially bad in the small stores where the milk was often not refrigerated, or was kept in large chests with meat and other provisions. Some member of the family was usually the attendant, and numerous chances of infection were observed, such as the dispensing of milk with vessels used immediately before by the children of the family upon the dining table.

Observations made upon the temperature of the milk as sold to the customer showed that the average temperature in summer was 61.8° F., and in winter 57.7° F. Over 80 per cent. of the milk in summer was kept at a temperature of more than 60° F., which cannot be regarded as sufficiently cool for the preservation of a substance of this nature.

Coit⁷ says that milk should be kept at a temperature of 50° F. Freeman,⁸ however, finds the average refrigerator temperature to be 65.5° F. This, it seems, would indicate that the refrigerators used for general purposes is not suited for the preservation of milk.

Observations were made upon the time required for milk to sour. At room temperature it varied from one to sixteen hours, average about six hours. Walker⁹ asserts that milk from cows fed upon house refuse and distillery slops sours much earlier than good country milk.

Consideration of the chemical data shows that practically 75 per cent. of the milk as dispensed in summer and fully 50 per cent. of that dispensed in spring does not meet the city standard of 12 per cent. total solids, 3 per cent. fat, and a lactometer reading of 1.029 at 60° F.¹⁰ The average of twenty-seven samples secured is as follows:

	Lactometer reading.	Fat.	Total Solids.
Summer.....	1.0277	3.17	10.88
Spring.....	1.0298	3.64	12.03

The following tabulation shows the condition more effectually:

Showing percentage of Samples—	Summer.	Spring.
Having fat content of less than 3%.....	48%	30%
Having total solids less than 12%.....	74%	55%
Having lactometer reading of less than 1.029....	63%	44%

When analyses of such milks are compared with the standard recommended in the above report and with standards which are accepted both by the dairymen and by food analysts, it is seen how far they fall below a fair standard of value.

The following tabulation shows the percentage of samples which failed to reach the higher standards:

	Summer.	Spring.
Having fat content of less than 4%.....	77%	66%
Having total solids less than 13%	92%	78%
Having lactometer reading less than 1 032.....	92%	74%

These figures, and especially the low results obtained for total solids, can be interpreted only as indicating an adulteration of the milk with water. The failure to meet the higher standards cannot be regarded as an argument against, but, on the contrary, emphasizes the need of such a standard. The city chemist¹¹ of Baltimore has called attention to the fact that the present low standard allows (and thus, in fact, encourages) the dilution of milk with water, an addition of 15 to 20 per cent., or even more, not being detected by a simple lactometer test. Such a practice is very common when it is allowed by a low standard or where the efforts of the local board of health to secure improved conditions are not supported by public opinion. H. Cordes¹² finds that 53 per cent. of the milk tested in St. Louis was watered. Byrnes¹³ calls attention to the use of separator milk as a diluent.

The sale of diluted milk is a fraud, but is usually regarded as a harmless procedure as regards public health. Numerous investigators have urged the use of bacteriological and microscopical tests as having a higher hygienic value. Goler¹⁴ emphasizes the fact that a legal chemical standard provides for the food value of a milk, but does not insure its cleanliness and fitness for infant-feeding. While the advocacy of these tests other than chemical has called attention to many valuable points, it should not be lost sight of that dilution of milk with water under commercial conditions is by no means an entirely harmless process. Infectious diseases are well known to be transmitted in this way. A distinct danger exists in the seeding of milk—a most perfect culture medium—with the saphrophytic organisms of putrefaction, which are not uncommon in water. The bactericidal power of the milk is weakened and the rapid growth of bacteria is encouraged. Dilution, by disturbing the food relation in the medium for growth, favors the development of atypical fermentations. Thus decreased sugar content allows the ordinary lactic-acid fermentation to be quickly followed and partially or almost entirely replaced by a change which is essentially putrefactive in character. Gaseous fermentations are not uncommon in polluted milks. These changes are favored by high temperature and also by the addition of alkaline preservatives. Russell and one of us¹⁵ have shown that in the comparatively short time (fifteen to eighteen hours) which intervenes between the milking and time in which milk is made into cheese at the cheese factory, the casein of milk is not appreciably attacked by these atypical fermentations, even at higher temperature. The

long period which frequently intervenes before milk is used by the consumer in our large cities (twenty-four to forty-eight hours), the temperature at which it is kept, and the practice of preserving the milk with alkaline preservatives, gives opportunity for profound changes, if not in the casein, in the more soluble proteid constituents.

Examination for preservatives showed that about 20 per cent. of the samples obtained in summer contained formalin which had evidently been added to the milk late in the period of fermentation. Our findings tend to confirm the opinion of the city chemist¹⁸ that acid preservatives are not much used. Observation and inquiry establish the fact that large use is made of preservative powders, which are added to enable the milk to be kept in the household until used without souring.

Acidity Determinations.—The result of the determinations of lactic acid are as follows:

	Summer	Spring.
Average percentage of lactic acid.....	0.1993	0.1689
Samples containing more than 0.18% lactic acid..	63%	26%
Samples containing more than 0.24% lactic acid	30%	10%

An examination of twenty-one samples secured from similar sources in February shows that about 40 per cent. of the samples contain more than 18 per cent. lactic acid.

The high acidity of many of the samples indicates advanced fermentation. The conditions under which the milk was produced and kept, especially the lack of efficient refrigeration, made it impossible to preserve such milk for more than short periods. Of all samples, 30 per cent. have passed the "period of incubation," which may be defined as the stage in which there is a more or less rapid proliferation of bacteria, depending upon the temperature of the milk, but no corresponding increase in acidity. Milks of high bacterial content after this period rapidly form acid, and soon coagulate if kept at room temperature. Of the samples collected in the summer, 60 per cent. are well within the latter half of the period of incubation. None of the samples have the high acidity, unaccompanied by changes in odor and taste, of milk to which acid preservatives had been added. Samples from poor sources, especially if several hours old, should be regarded as suspicious if not reacting quite acid.

Bacteriological Tests.—The bacterial contents showed a seasonal variation:

	Summer. Per cc.	Spring. Per cc.
Minimum.....	223,000	116,000
Maximum.....	25,600,000	3,904,000
Average	4,447,000	1,052,000
Percentage of samples containing over 1,000,000 bacteria per cc.	Summer 77%	Spring 40%

The great bacterial contamination of these milks as compared with milk produced and dispensed in a cleanly manner can be better appreciated perhaps from the following diagram.

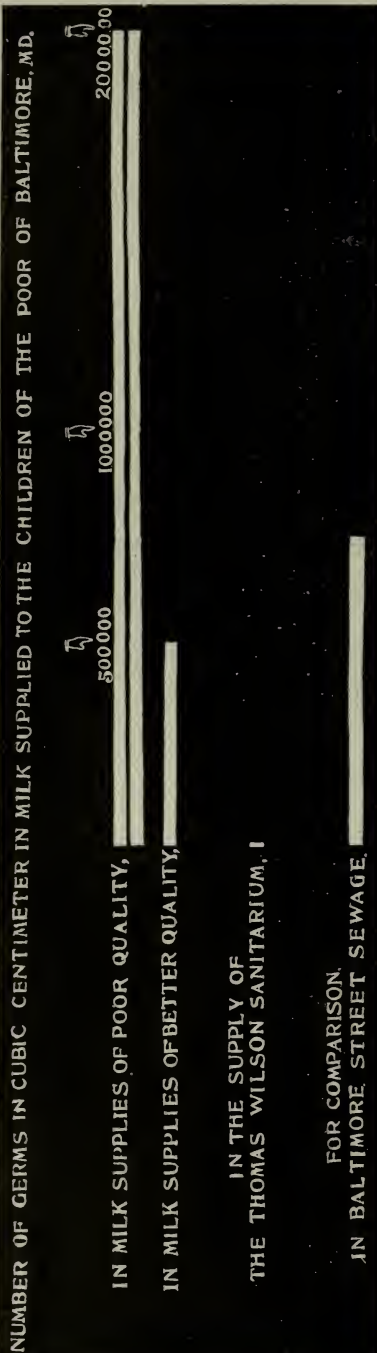


DIAGRAM No. 2.

Showing the germ content of the milk supplies used for infants' food during the summer months in Baltimore, Md.

Dividing the samples taken in summer on the basis of 1,000,000 bacteria per c. c., it is seen that twenty-one contained more than 1,000,000 per c. c., and averaged over 4,000,000. But six of the samples contained less than 1,000,000 per c. c., and averaged over 500,000 per c. c. The contrast is striking between the bacterial contents of these milks of moderate and great pollution and that of a milk produced and cared for under the best conditions, such as was used for infant-feeding at the Thomas Wilson Sanitarium. The average of a number of analyses of the latter milk shows a germ content of 3000 per c. c. De Schweinitz¹⁷ finds that where great pains is taken to produce clean milk the germ content varies from 200 to 5000 per c. c., rarely exceeding the higher limit, but reaches under conditions not exactly determined 50,000 per c. c. He finds in the milk of Washington, D. C., a germ content which varies from 30,000 to 4,000,000 per c. c., equaling or exceeding that of sewage. (Diagram No. 2.)

Park¹⁸ finds an increase from 1,977,692 per c. c. in winter to 15,163,000 in summer in milk secured from the tenement districts of New York city, and an increase from 327,500 per c. c. to 1,001,400 per c. c. in milk secured from the better residence districts. He has shown that the pollution of the milk by the producer is twice as great in summer as in winter, and that in the summer, even when the milk is preserved at a temperature of 45° F., it contains about 680,000 per c. c. when it reaches the consumer.

The seasonal variation of the germ content of the milk supplied to sick babies, its relation to the mean monthly temperature, as well as the periodic occurrence of summer diarrhea, is shown in Diagram No. 3, in which is embodied the following data:¹⁹

MONTHLY MORTALITY FROM DIARRHEAL DISEASES OF INFANTS UNDER FIVE YEARS OF AGE, BALTIMORE, MD.

	Jan.	Feb.	Mch.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1897	4	6	6	13	26	148	313	177	85	32	13	7
1898	6	8	6	12	4	137	230	161	98	42	6	10
1899	5	6	8	1	5	92	294	160	98	28	5	8
1900	6	5	4	6	13	115	350	168	104	44	19	14
1901	8	5	5	3	13	77	315	154	82	38	23	9
Avr.	5.8	6.0	5.8	7	12.2	113.8	300.4	164	93.4	36.8	13.4	9.6

MONTHLY MORTALITY FROM ALL OTHER CAUSES IN INFANTS UNDER FIVE YEARS OF AGE, BALTIMORE, MD.

	Jan.	Feb.	Mch.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1897	221	228	252	201	196	217	257	243	236	215	219	205
1898	216	270	339	250	279	308	338	249	263	216	214	272
1899	264	283	237	212	190	224	249	205	188	209	158	190
1900	264	293	317	267	198	206	252	197	216	242	194	203
1901	299	158	179	152	128	116	190	124	145	152	130	147
Avr.	232.8	216.8	264.8	216.4	198.2	214.2	257.2	203.6	210.6	206.6	183.0	183.4

MEAN MONTHLY TEMPERATURE (F.) FOR BALTIMORE, MD.

	Jan.	Feb.	Mch.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1897	31.6	36.8	45.0	53.0	62.8	70.1	76.9	74.3	68.8	58.2	46.3	38.6
1898	37.0	35.2	48.6	51.2	63.9	73.8	78.7	77.4	71.4	58.0	44.6	31.2
1899	33.4	28.4	41.7	53.8	64.5	75.2	77.6	75.6	67.0	58.7	47.4	37.4
1900	36.2	33.1	38.6	55.0	65.2	73.4	80.1	80.4	73.8	62.0	49.6	37.2
1901	34.9	29.5	43.8	50.7	61.8	72.6	80.4	76.7	65.4	56.7	41.8	35.2
Avr.	34.6	32.6	43.5	52.7	63.6	73.0	78.7	76.9	69.7	58.7	45.9	35.9

Attention is directed to the rapid increase in the mortality in diarrheal diseases in June and July. The less rapid decrease in the

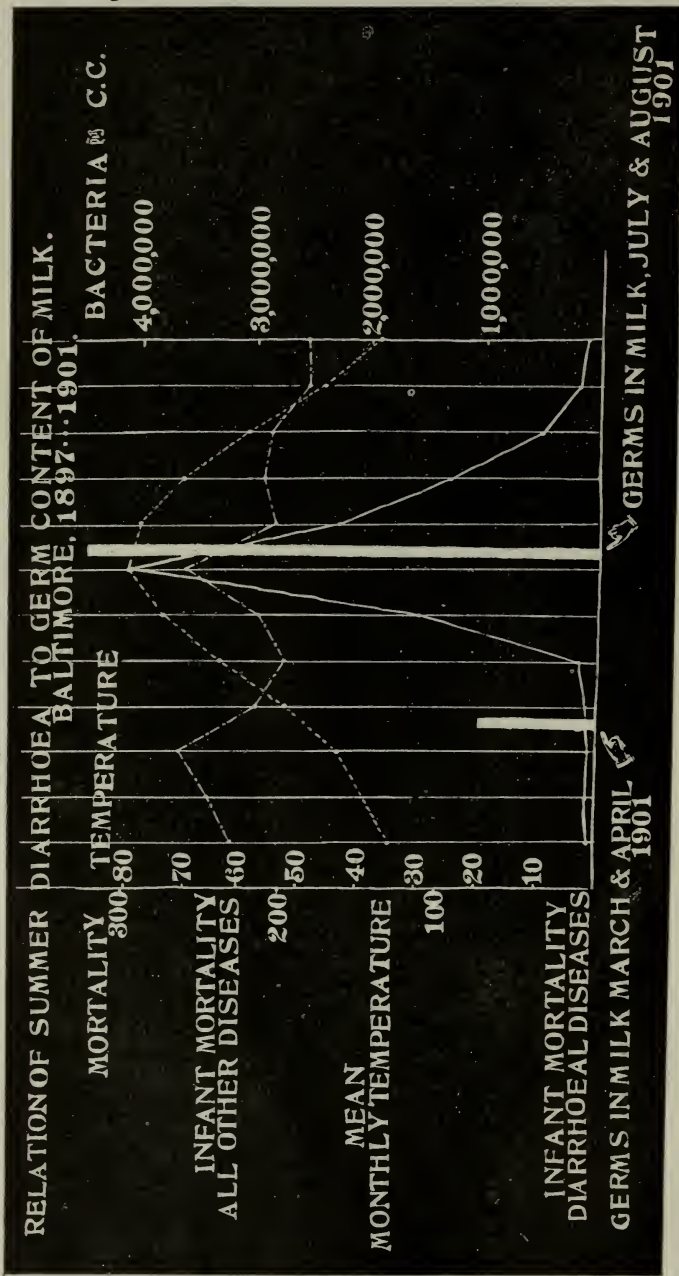


DIAGRAM No. 3.

Showing the relation of the diarrheal diseases of infants to the germ content of milk used as infants' food. = mean monthly temperature; — = deaths of children under five years of age from diarrheal diseases; - - - = mean deaths of infants from all other causes; | = germ content of milk per cubic centimeter.

fall months is due to the deaths of chronic cases. Note the absence of any characteristic relation to temperature in the mortality of infants from causes other than diarrheal.

Number of Species.—Thirty of the samples collected deposited a sediment on standing, and from this sediment bacillus coli could be easily cultivated. Observations on the number and character of species were made by study of the plate cultures and by subcultures in the standard media. The better class of milk contains the normal flora of acid fermentation, showing three or four species which could be easily differentiated. Those milks which the chemical examination showed to be diluted contained a more varied flora, six to ten species being readily determined. The finding of numerous colonies of bacillus violaceus, an organism whose normal habitat is surface water, in a number of samples of milk is worthy of note.

In regard to the number of bacteria in the milk of Baltimore, it is certainly much higher than it should be. The high germ content is directly attributable to carelessness and ignorance on the part of producers and milk dealers. The condition is not uncommon. Snow²⁰ finds 1,000,000 to 4,000,000 bacteria per c. c. in the milk of Buffalo, grocers' milk being the worst. Sedgwick reports 7,000,000 to 19,000,000 per c. c. in the milk of Boston. Goler²¹ finds 100,000 to 1,500,000 per c. c. in the milk of Rochester. Conn writes that city milk contains from 3,000,000 to 6,000,000 bacteria per c. c., and that the inhabitants of a large city who use a milk of this character consume 300 pounds of excrement daily.

Unquestionably, simple and inexpensive modifications in the methods of handling milk will do much to improve the condition just noted. Below are given the results of bacteriological analyses of such products under favorable and unfavorable conditions, respectively.

(A) Secured under good conditions, where every care was taken to exclude dirt; (B) Where the methods of handling the milk was careless, and little effort made to avoid contamination.

A	B
1,310	1,316,000
3,300	1,400,000
4,500	638,400
4,500	490,000
10,000	49,000
1,090	101,400
2,640	234,640
2,330	76,064
6,170	73,384
6,696	726,480
5,644	32,400
1,412	38,400
1,288	97,200
2,288	100,800
2,860	1,104,200
144,196	1,159,860
1,280	246,400
2,000	403,374
8,400	180,000
10,500	143,360
1,440	126,400
688	68,000
Average 10,021	54,411
	2,543,625
	1,619,995
	Average 520,949

These analyses were made on samples delivered at a point near a receiving station on the Western Maryland Railroad, and fairly represent the conditions of milk as it is sent into the city.

An occasional high result similar to this is commonly secured in milk analyses. Excluding this single high result, the average is 3228.

Park (*l. c.*) found that the germ content of milk after preservation of twenty-four hours at 45° F. was as follows:

	per cc.
Milk produced under very good conditions.....	2,766
Milk produced under fair conditions.....	21,666
Milk produced under ordinary conditions.....	48,000

In view of the present great contamination of the milk supply of very large cities, Park proposes that health authorities establish a limit of bacterial content of milk, and offers as a provisional limit for New York city 500,000 per c. c. as the milk reaches the city, and 1,000,000 per c. c. as delivered to the consumer. Of the samples taken in Baltimore during the summer, 77 per cent. exceed this limit. Goler²³ writes that Rochester has made a practical and successful test of a limit of 1,000,000 per c. c. Buller proposes a limit of 50,000 per c. c. De Schweinitz (*l. c.*) finds only 40 per cent. of the milk supplied to Washington, D. C., below the limit. The conditions in Baltimore indicate that the limit proposed by Park for New York city would be a practical one in a large city, and that enforcement of a provision providing for restriction of the sale of milk above this limit would result in a greatly improved milk supply.

Inspection of the death-rate of children in large cities emphasizes the great need of improvements of all conditions which will affect it.

RATIO OF DEATH RATE OF CHILDREN TO THE TOTAL MORTALITY.

	Average of 9 cities of New York State.	New York City.	Baltimore.
1889	37.0	42.3	....
1890	35.5	40.8	49.37
1891	34.5	41.8	....
1892	34.8	41.5	38.82
1893	33.3	39.2	37.72
1894	34.6	42.0	39.64
1895	33.2	41.5	39.03
1896	31.8	39.7	37.58
1897	29.8	39.4	37.62
1898	30.3	38.3	37.92
1899	....	....	32.69
1900	....	....	34.34
1901	....	....	34.24

It will be seen that there is a decrease in the ratio of infant mortality to that of the total mortality. Goler (*l. c.*) attributes the decrease in nine cities in New York State to the general improvement of medical practice as applied to the diseases of children, and especially to the securing of a better milk supply.

The data in the following table, expressed in Diagram No. 4, shows, however, that in Baltimore, despite an increase in total mortality, due largely to increase in population, and a decrease in

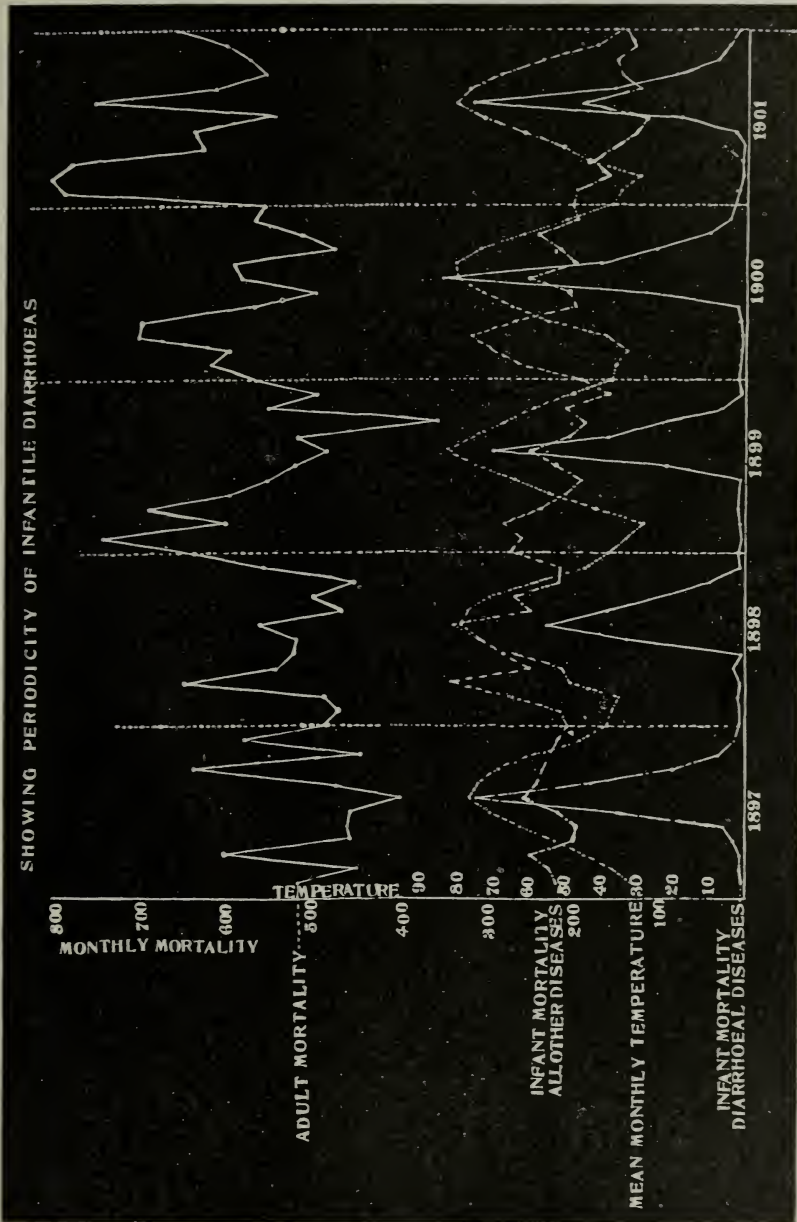


DIAGRAM No. 4.

Mortality statistics of Baltimore, Md., for five years (1897-1901). — (upper line) = mortality of adults; — (lower line) = mortality of children under five years of age from diarrheal diseases; - - - - - mortality of infants from all other causes; mean monthly temperature.

infant mortality, there is practically no change for the better in that class of diseases of children generally known as summer diarrhea.

MORTALITY STATISTICS.

Year.	Total Mortality.	Infants under 5 years of age.	Diarrheal diseases of infants.
1897	9,329	3,570	830
1898	10,385	3,939	720
1899	10,152	3,319	703
1900	10,700	3,675	848
1901	10,506	2,552	732

Efforts, crowned with success, have been made to supply the poor with milk better suited to infant-feeding. Goler (*l. c.*) in 1899 writes that milk stations had been established in Rochester, and milk of definite composition supplied to the poor at cost during July and August. Getty²⁴ describes a milk dispensary established at Yonkers from which the poor could secure milk, milk mixtures, and barley water for the feeding of sick infants during the summer months. He notes that with the use of the improved diet there was a decrease in mortality from diarrheal diseases. Numerous other plans, varying with the conditions to be met, have been tried. Perhaps the most interesting in its character and results is the Straus Milk Charity.²⁵ Freeman²⁶ gives the following data:

MORTALITY IN NEW YORK CITY.

	Total.	Infants under 5 years.	Infants Diarrheal dis.
Before the use of Straus' Milk...1890...1891...1892....22,549		13,201	6,122
After the use of Straus' Milk...1894...1895...1896....24,579		12,831	5,262
	Increase 2,330	Decrease 370	Decrease 860

This gratifying decrease in mortality from diarrheal diseases is graphically represented in Diagram No. 5.

Our conclusions, based upon our observations and upon the complete analysis of fifty-four samples, with a less complete examination of a larger number of samples of milk, are as follows:

1. A considerable part of the milk supplied to consumers in the poorer districts of Baltimore is adulterated by the addition of water, and otherwise falsified by the addition of preservatives, coloring matters, and other foreign substances, thus rendering it unfit for infants' food.

2. The acid content of such milk is so high that unless preservatives are added, or the milk sterilized, it can be kept but for a short period under the ordinary conditions found in the homes of the poor.

3. The bacteriological content of the milk is enormously high when compared with that of a milk produced by proper methods.

4. These conditions are caused by ignorance and lack of cleanliness on the part of the producer and milk dealer.

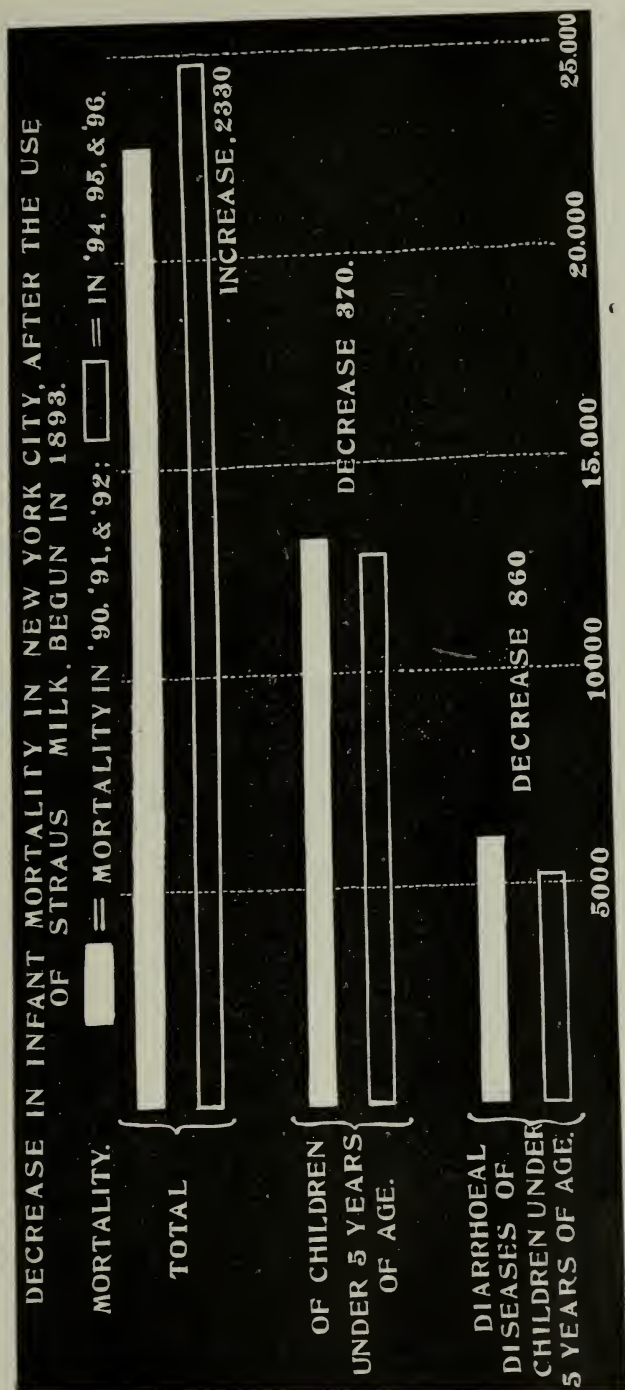


DIAGRAM No. 5.

Showing the decrease in infant mortality in New York City following the use of a pure milk properly prepared for infant feeding. = mortality in 1890, 1891, and 1892, before the use of Straus' milk; = mortality in 1894, 1895, and 1896, after the use of Straus' milk.

5. There is a great need of improvement of the milk supply in Baltimore, and a necessity for the education of the people so that the measures of the Board of Health shall receive the needful support of public opinion.

6. Measures designed to place proper modifications of pure milk within the reach of the poor and middle classes during the summer months would result in a decrease in the death-rate from diarrheal diseases.

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- ²²144, 196.
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THE CONTINUOUS BATH IN THE TREATMENT OF SURGICAL INFECTIONS.

By H. E. Pressly, M.D.,

Birmingham, Alabama.

THE treatment of surgical infections by the continuous bath is not a new measure. Nearly all of the works on surgery refer to it in a casual way and mention it as one of the modes of procedure. But it seems to me that neither the medical press nor the profession at large has given it the recognition that it deserves. Among dermatologists it seems to meet with more favor than with the general surgeon, and very properly, too, for in the lesions of the skin it has its greatest usefulness, and moreover this plan of treating disease was first worked out, I believe, by the German dermatologists.

The literature on the subject is scant, though what is said, so far as I have been able to learn, is all favorable to the continuous bath as one of the means of combating surgical infections, particularly burns, bed-sores, infected and lacerated wounds.

A recent work on surgery, Wharton and Curtis, after describing other plans of treating pus infections, says: "In some cases permanent baths have been successfully employed, the part being suspended by bandages in a small bathtub beneath the level of the fluid. This method answers for large superficial lesions, but the irrigation [continuous irrigation, I should say] is better for cavities." Duhring in his work on skin diseases, in connection with the treatment of pemphigus, says: "The best local treatment for grave cases is to be found in the continuous bath as recommended by Hebra. This consists in permitting the patient to remain in a specially prepared bathtub for days, weeks or months, according to circumstances. In the tub are to be placed a horsehair mattress and pillows upon which the patient may rest comfortably. Patients will sometimes experience great relief from the bath. They may remain in the water, eating and sleeping and living there, for an almost indefinite period without in any way interfering with their general health." In another connection the same author very favorably mentions the permanent bath in the treatment of burns and chronic skin infections.

Hyde, in his work on skin diseases, says: "The most perfect of all applications of water to the surface of the body is that most resembling the water bath, in which the tender skin of the fetus is safely immersed for consecutive months. The comfort and therapeutic value of a bath prepared and administered in approximation to this ideal can scarcely be overestimated. Were it not for the difficulties with which it is attended, so far as it relates to

many portions of the body surfaces, it would be possible with this single therapeutic measure to rob the exudative affections of the skin of a great many of their formidable features."

Baruch, in his "Hydrotherapeutics," speaks very favorably of it as used in Bellevue Hospital by Dr. Hamilton, and gives certain details of technique that are very valuable. The matter is thoroughly gone over by Hebra (see Transactions of the New Sydenham Society, London, Vol I, page 320).

The continuous bath may be applied with comparatively little apparatus—in fact, good results can be obtained with no other resources than the ordinary bathtub and foot-tub of the household. More elaborate an outfit may be obtained at a small expense. You can get along perfectly well with a foot bath, a hand bath and a bath for the trunk. A useful foot bath may be made as described by Baruch: "The floor is in form of an inverted roof, the apex of which is below the base, being represented by the open top of the bath. The apex is supported by a wooden frame and horizontal board.

For the hand and forearm a tub shaped as an ordinary long, deep fish kettle is sufficient. In either case the limb should be swung in the tub underneath the water by a piece of surgical gauze fastened to the edge of the tub by the ordinary clothespin of the laundry, though the water floats up a hand or a foot, so that if there is no bone broken the patient is comfortable without this support. For the trunk Hebra's hammock bath is ideal, a description of which can be found in Dr. Baruch's book. It is almost as satisfactory, though, to provide your patient with rubber pillows and immerse him in the ordinary bathtub.

The water should be clean, preferably running, warmed to about the body temperature, and should have a specific gravity approaching that of the blood serum. These essentials are easily attained. The temperature is maintained by adding a little warm water every half-hour, and at the same time taking out a similar quantity. The tub should be covered with blankets, and with a little care the temperature can be kept between 98 and 100 degrees F. In addition to adding water occasionally it is necessary to change the entire volume of water three or four times in the twenty-four hours. The specific gravity may be raised to approximate 1.028 by the addition of one drachm of common salt to the quart of water. We commonly add a little boric acid for its antiseptic influence.

The advantage in thus raising the specific gravity is that there is less swelling of the member due to endosmosis. There is less ulceration of the skin if the healthy areas around the wound are greased with suet or vaseline. These precautions will give, as Hyde suggests, a condition closely imitating that of the fetus in utero, viz., floating in a liquid of temperature approximately 100

degrees F., with a specific gravity ranging from 1.002 to 1.030, and with the oily vernix as a protection to the tender skin.

Whenever infection is located on the trunk, as in the case of a bed-sore, the best method is to suspend the patient on canvas in the water, though if rubber pillows are provided he can make himself comfortable in the tub. If the patient is restless and does not sleep while in the tub, or if he shows symptoms of exhaustion, he should be removed from the tub, dried, and a dressing applied to his wound. He is then put to bed, say for a night, and then in the morning, after removing the dressing, he should resume the tub, thus making the bath intermittent. In two cases especially I have preferred this method. The bath should be kept up thus intermittently or continuously until the wound is protected by granulation tissue. Usually fourteen days will suffice, in the worst cases though it may require longer. While there is any sloughing the bath should be continued. Afterwards the patient should be removed from the bath and dressed as the surgeon prefers.

The advantages that I claim for the continuous bath in these conditions are three: First, the warm water is an anodyne, and the patient suffers less pain and requires less opium than under any other treatment. Moreover, the afflicted member being floated up by the water, may be moved by the patient, and his comfort is again increased by not being forced to remain immovable for a more or less prolonged period.

Second, the odor from offensive wounds is controlled better than in any other way. Doubtless all have seen cases where the odor from infections, and particularly from burns, was almost insufferable, so that the patient would be a nuisance to the other inmates of a ward, or even of an adjoining room. This very disagreeable symptom is entirely controlled by the bath, the offensive odors being absorbed by the water.

Third, and herein lies the real value of the immersion treatment, it constitutes the most perfect drainage attainable. By a constant interchange of fluids the poisoned discharges are continually removed from absorbing surfaces, and the patient's prospects of recovery enhanced accordingly.

There are a few precautions that ought to be mentioned and observed in using the continuous bath, and the first is in close connection with this subject of drainage. Do not expect your bath to be a cure-all in and of itself. Look on the tub as a dressing, and as a dressing only. It will not take the place of any operative procedure. Free incision into infected areas is just as essential as under the other lines of treatment. Necrotic tissue must be trimmed off regularly and carefully. See to it that there is no burrowing of inflammatory products. In superficial lesions, as in burns and bed-sores, the bath has its greatest usefulness, but

even in deeper infections where the operative work is carefully done the tub will give brilliant results.

The next precaution that I would mention is, be careful that your water is kept warm. By so doing you may save your patient a great deal of useless suffering.

Third, if the patient becomes exhausted and does not bear the tub well, make the bath intermittent.

Fourth, avoid the hanging downwards of an infected member, and if it is the lower extremity, be sure that the veins in the popliteal region are not compressed, thereby cutting off return circulation.

Fifth, in recent wounds it is well to put on a dry dressing for six or eight hours in order that all oozing may be controlled.

Sixth, support the patient by careful feeding and strychnia and whiskey just as under other treatment.

Seventh, do not become alarmed if the limb becomes considerably swollen and the wound covered with a white deposit. The swelling is not inflammatory, and the deposit is not diphtheritic.

Objections to the bath in these conditions are: First, that it requires more nursing than can be obtained in ordinary everyday practice. There is something in this objection, though if the work is carefully and systematically done it will not be found, after all, that it is so burdensome, and besides we can well afford to do extra work for a fortnight if thereby we obtain better results.

Second, it is objected that the bath subjects patients to trying positions. This objection will not be made by anyone who has given the matter a fair trial. Instead of making patients uncomfortable, it will be found that their comfort is materially increased, and they will request to be left in the tub.

Case 1. J. H., male, colored, age twenty-two. While carrying molten iron the patient tripped and fell, some of the hot iron being poured into his wide-mouthed shoe. There was a severe burn of the whole foot, though the entire thickness of the skin was not destroyed on the outer side and sole. He was given one-half grain of morphine and his foot immersed in water, a little boric acid being added. The patient never complained of any pain after his foot was put into the bath, and he made the most satisfactory progress, his temperature never going over $99\frac{1}{2}^{\circ}$. After fourteen days his foot was removed from the water, and the granulating surface dressed. He then left the hospital, and after a few weeks had a foot that was as useful as ever. Note carefully, please, the entire absence of pain.

Case 2. J. S., male, colored, age twenty-six, admitted December 5, 1900. While working as a switchman in the railroad yards this patient had a car wheel to pass over his foot, completely disorganizing it as far back as the insertion of the tibialis anticus,

which was exposed in the wound. Lacerated tissues were trimmed off, and there being no possibility of obtaining a flap, the foot was put under water. There was considerable pain for three or four days, with temperature reaching 102° . It required three weeks for granulation tissue to cover the exposed cuboid and cuneiform bones. During this period the bath was continuous, and the patient's progress was very satisfactory; later his wound was skin-grafted, and he now has a stump with perfect motion in the ankle joint.

Case 3. J. H., colored, age thirty-seven, male, admitted May 2, 1901. This patient while climbing upon a freight car was knocked off by a car on another track, a car wheel amputating the left leg and crushing the right foot. Left leg was amputated and dry dressing applied; right foot was dressed temporarily and the following morning was put under water. The next day his temperature reached 102.4° F., the highest point during the convalescence. On ten days following it reached normal, and continued from 98 to 99 degrees F. until he was removed from the water, on the twentieth day. Later skin-grafting was done, and the patient had useful but deformed foot.

Case 4. C. L., male, white, age thirty, admitted February 9, 1901. This patient was standing on the footboard of a switch engine which was pushing a railway caboose, when the caboose jumped the track, and his leg was caught and rolled between the corner of the caboose and the engine. He suffered a severe bruise of the thigh, with rupture of his internal saphenous vein. The limb was cleaned up and a sterile dressing applied, the patient being confined to bed and the limb elevated. His temperature on the following morning was 100 degrees F., and his pulse 110 . The temperature continued above normal, and on the following day reached 102.5° F., and other symptoms of sepsis came on, headache, etc. Wet carbolic applications were made, hot and changed every two hours. Symptoms grew steadily worse, until on the fourth day he was anesthetized and free incisions were made, turning out the blood-clot which had dissected the skin and superficial fascia away from the deep structures almost entirely around and over the whole length of the thigh. Afterwards the wound was packed and again fomented. On the eighth day the patient, almost exhausted, was again anesthetized and the entire skin and fascia from Poupart's ligament to the knee, except a strip about one inch wide behind, was removed. The adductor muscles toward the knee had sloughed, and were removed, exposing the femoral artery as it passes from Hunter's canal into the popliteal space. Afterwards he was put into the continuous bath for eighteen days, the last three days being intermittent. Symptoms of sepsis rapidly abated, and when removed from the tub, granulation was well advanced over the

entire thigh. Later he was skin-grafted, and made a good recovery. He left the hospital in August, 1901. When last seen he was without crutches and with very slight limp. It is hardly possible that the patient could have lived under any other treatment.

Case 5. J. S., male, white, age thirty-one, admitted October 19, 1901. This patient gave a history of having had a pus infection of his thigh that had been treated for some time by packing and wet-dressing. He came under observation very much emaciated, with numerous long sinuses in his thigh that secreted pus freely. He had been sent in by his family physician for a hip-joint amputation. The sinuses were opened and the patient immersed. Recovery with a useful limb was prompt and satisfactory. He was almost exhausted from the profound suppuration, so he was given an intermittent bath. He was discharged November 2, 1901, with a small granulating surface to the outside of his knee, which afterwards healed. He is suffering now from a swollen foot, due to the extensive destruction of the venous system of the thigh.

Case 6. H. B., age twenty-six, colored, male, admitted November 10, 1901. This patient is a railroad brakeman. While coupling cars he had his thigh caught between the bumpers of two cars, and the soft parts about the hip joint were entirely disorganized. The skin and fascia were torn from the lower front of the abdomen and the hip-joint capsule and iliac crest laid bare. The capsule of the hip joint was intact. The wound measured twelve and one-half by eight inches. Hemorrhage was controlled and the patient put into a tub. There was an extensive sloughing of the crushed tissue and a marked septic reaction. Every morning he was removed from the tub and necrotic tissue dissected off. After fifteen days granulations were well advanced, and he was removed from the tub. Later he was skin-grafted, and is at present about the city. He still has a small area of granulating surface that is daily growing smaller.

Case 7. P. K., colored, male, age twenty-four, admitted December 27, 1902. This patient was a miner, and received a burn of both arms, face, both thighs and lower part of the trunk by explosion of powder. He was put into the tub on December 28. On the following morning he began having convulsions, and was removed from the bath. He died on the evening of the 29th.

These patients were, with one exception, robust young men, a class of patients that we ought to get good results from, but I do not believe that along any other line of treatment could such results be obtained. We have treated several other minor injuries with results equally satisfactory.

Clinical Note.

DYSTOCIA DUE TO ASCITES IN THE FETUS.

By M. Savage, M.D.,

Baltimore.

ABOUT a year ago I was called to attend a labor case, the midwife in attendance having sent for me. The patient was an Italian woman, aged thirty-two years, medium size, III-para, and had no complications in her previous labors. The head was expelled two hours before my visit, but there had been no further progress. The midwife said that she had almost pulled the head off, but it would not "budge." The position was L. O. A., and the child was dead. No maternal abnormality could be detected by palpating the abdomen. The pains were feeble. I hooked my right index finger into the left armpit of the fetus, and used traction, pressing with my left hand upon the breech through the fundus. The traction was continued until the arm of the fetus was almost severed, but there was no advancement. Dr. Chas. F. Blake was called in, and after repeated attempts he likewise failed to dislodge the trunk. Suspecting dropsy of the fetus, he punctured the abdomen about the diaphragm, when a brownish liquid escaped, the abdomen collapsed, and the trunk was immediately expelled. There were no external abnormalities about the fetus, which was of medium size and weighed probably about seven pounds. The head was not hydrocephalic. Unfortunately, we could not ascertain the cause of the condition, since we were not permitted to do an autopsy.

Cases of dropsy of the fetus, or rather combined hydrothorax and ascites, as this case was, obstructing delivery, are not common. Within the last five years probably no more than a dozen cases have been reported. A similar case, with abnormal presentation, was reported in this JOURNAL by Dr. L. George Taylor of Perryville, Md., last July, under the heading, "Spontaneous Version of a Fetus with Hydroperitoneum, Requiring an Operation Before Delivery Was Possible."

Dr. Lusk, in his text-book, gives nine causes for the production of the trouble. In a majority of the cases reported distention of the urinary bladder of the fetus was given as a cause.

Dystocia, after expulsion of the head, should lead one to suspect dropsy of the fetus.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

A NEW SIGN IN THORACIC ANEURISM.

Henry Lee Smith, in a clinical note published in *American Medicine* (May 17, 1902), describes a sign discovered by him which he thinks may prove of value in the diagnosis of thoracic aneurism. He describes this interesting sign as follows:

"This sign is elicited by combined palpation and percussion as follows: The cricoid cartilage is grasped as is done for tracheal hugging, while an assistant percusses the chest. When normal parts are percussed the palpating hand feels a distant and feeble jar (proximal ends of the clavicles excepted), but so soon as the aneurismal area is reached a shock which is both direct and resilient in nature is felt, and somewhat suggestive, I take it, of the sensation experienced by one when a rubber bag filled with water is simultaneously palpated and percussed. With my eyes shut and by the examining method described I have recognized in each case the peculiar modification of the percussion stroke imparted to it by the aneurism."

Smith only claims the probability of the constancy of this sign, as it is based upon his observation of but four cases of well-marked thoracic aneurism, but the well-marked characteristics of the sign in these cases and the fact that Smith's results were verified by a number of other clinicians, by some of whom the test was made with their eyes closed, suggest that Smith's sign may be of great value in the solution of this otherwise very difficult problem in diagnosis.

THE JUSTUS BLOOD TEST FOR SYPHILIS.

Seven years ago Justus described the test for syphilis which since then has been associated with this name.

The test as described by him was the marked diminution of hemoglobin (10 to 20 per cent.) noticeable even twenty-four hours after mercurial inunctions or injections in all untreated cases of secondary, tertiary and congenital syphilis.

Justus based his claims on the positive results obtained by him in three hundred syphilitic cases and the negative results of a large number of control experiments.

No effect was noted when the mercury was given by mouth, nor was the reaction characteristic in latent and subsiding cases. Extremely little work has been done attempting to agree with

or dispute Justus' claim, although Cabot and Mertens (*Boston Medical and Surgical Journal*, April 6, 1899) got positive results in seven active cases of syphilis, negative results in three passive, and negative results in the thirty-three control experiments, with the exception of two cases—one of chlorosis, the other of tertian malaria.

Brown and Dale (*Cincinnati Lancet-Clinic*, March 24, 1900) reported thirteen cases in which no real aid could be obtained from a blood examination, some showing an increase, some a decrease, while Jones (*New York Medical Journal*, April 7, 1900) applied the test to thirty-five syphilitic cases and eighteen control cases. Of the active syphilitics thirteen out of seventeen gave positive results, while negative results were the rule in cases of chancre with or without adenitis, and negative results were universal in the control cases.

Christian and Foerster's results were of about the same nature, although even somewhat less favorable.

Tucker (*Philadelphia Medical Journal*, May 10, 1902) reports twenty-seven cases of various kinds examined by him at the Jefferson Hospital. The summary of his cases is as follows: Positive results in five of thirteen cases of initial lesion, in four of seven cases of chancroid, in all three cases of herpes, in one of three cases of genito-urinary tuberculosis, while a negative result was obtained in the one case of putulo-crustaceous syphilide tested.

Tucker used the Dare hemoglobinometer in the majority of his cases, and his conclusions are "that Justus' test has no practical value in the differential diagnosis of venereal ulcers, since the reaction occurs with an almost equal degree of frequency in the non-syphilitic conditions with which syphilis may occasionally be confused."

In the same number of the *Philadelphia Medical Journal* Huger also reports a series of cases examined by him in the genito-urinary department of the Johns Hopkins Hospital. The v. Fleischl hemoglobinometer was used. Great care was expended in the technique of the process, and the readings were verified by a person skilled in blood work, but not associated with Dr. Huger in his investigations.

Huger examined in all sixteen cases with the following results: Three of six cases of chancre gave positive results, one of three cases of chancroid, while four cases of chancre with secondary lesions and three control cases were negative. Huger's conclusions are as follows:

"The figures speak for themselves and need very little comment. The number of cases I report is very few, but there are enough negative results in the group of chancres to show that the test is wholly unreliable, and moreover the one positive result

among the chancroids detracts even more, because the failure to put a syphilitic on mercurial treatment will soon be proven a mistake, but to condemn a non-syphilitic to years of, to say the least, unpleasant treatment and a life-long belief that he has had, and perhaps still has, the disease is unpardonable."

The results of Tucker and of Huger thus practically agree, and until some work of a most careful and comprehensive nature is undertaken, Justus' claim for having discovered a valuable blood test for the diagnosis of syphilis must be regarded as not proven.

PANCREATITIS.

Opie (*American Journal of the Medical Sciences*, May, 1902) discusses at length the causes and varieties of chronic interstitial pancreatitis, and coming as it does from one whose studies upon this gland have been pregnant with results, it is especially valuable and timely.

After calling attention to the fact that but little systematic study has been devoted to this subject, and yet the importance of carefully studying all the changes in an organ which plays such an important rôle in such diseases as diabetes mellitus and disseminated fat sclerosis, Opie discusses the generally accepted views held regarding the causes and varieties of this condition.

Carnot describes chronic pancreatitis as "(a) mechanical, produced by obstruction of the duct; (b) toxic, or (c) infectious, caused by the action of toxic substances or of bacteria carried to the gland by the blood or by the lymph or by way of the duct." This classification is based largely upon his studies on experimental pancreatitis, and it is difficult to apply it to such cases amongst human beings.

Opie has collected from the clinical records and autopsy findings of the Johns Hopkins Hospital twenty-nine cases of chronic pancreatitis, seventeen of which occurred in males, and over two-thirds of which occurred between the ages of forty and sixty years.

In ten of the cases chronic inflammation followed partial or complete obstruction of the pancreatic ducts, while one case was associated with hemachromatosis. Opie distinguishes two types of chronic inflammation—the interlobular, "where the newly-formed connective tissue is in great part between the lobules," and the interacinar, "where the process is diffuse, invading the lobules, separating individual acini, and implicating the islands of Langerhans." In twenty-one of Opie's twenty-nine cases the inflammation was interlobular, in eight interacinar. Opie then gives a digested clinical and pathological report of each of the cases separately, and concludes his very interesting and valuable article as follows:

1. Chronic interstitial pancreatitis is slightly more frequent in males than in females. Two-thirds of the total number of cases occur between the ages of forty and sixty years.

2. The most frequent cause of chronic pancreatitis is obstruction of the duct of Wirsung, due to pancreatic calculi, to biliary calculi in the terminal part of the common bile duct or to carcinoma invading the head or body of the gland. Duct obstruction may be followed by the invasion of bacteria, which take part in the production of the resulting lesion.

3. Ascending infection of the unobstructed duct of Wirsung may follow an acute lesion of the duodenum or of the bile passages, and may cause chronic inflammation. In cases which have given a history of long-persistent vomiting chronic diffuse pancreatitis may be found at autopsy, and is probably the result of an ascending infection of the gland.

4. General or local tuberculosis is occasionally accompanied by chronic diffuse pancreatitis, affecting chiefly the interstitial tissue of the gland.

5. Chronic interstitial pancreatitis is not infrequently dependent upon the same etiological factors, notably alcohol, which produce cirrhosis of the liver, and in about one-fourth of the cases the lesions are associated.

6. Following duct obstruction and ascending infection the lesion affects principally the interlobular tissue, only secondarily invading the lobular tissue and sparing the islands of Langerhans. Diabetes results only when the lesion is far advanced.

7. Accompanying the so-called Laennec's or atrophic cirrhosis of the liver, the pancreatitis is at times the seat of a diffuse chronic inflammation, characterized by diffuse proliferation of the interacinar tissue, which invades the islands of Langerhans. A similar lesion accompanies hyaline degeneration of the islands of Langerhans and the condition known as hemochromatosis.

8. Interacinar pancreatitis is usually accompanied by diabetes mellitus. When diabetes is absent the lesion is of such slight intensity that the islands of Langerhans are little implicated.

Opie (*Johns Hopkins Hospital Bulletin*, May, 1902) describes an interesting case of acute hemorrhagic pancreatitis. The patient, a man twenty-eight years of age, gave no history of any previous digestive disturbance, had never been jaundiced, and had enjoyed good health.

The symptoms were nausea and vomiting and agonizing pain in the epigastric region. The vomiting was almost continuous, and an exploratory incision was made. The omentum was found to contain innumerable foci of fat necrosis, which caused acute pancreatitis to be suspected, and an incision was made through the great omentum to expose the pancreas. The lesser peritoneal cavity was found to contain bloody fluid, and the pancreas was covered by a bloody coagulum.

The patient died the day following the operation, the fifth day of his illness, and the pancreas was found to be twice the normal

size, with a hemorrhagic lesion involving the greater part of the body. The tissue was soft, of mottled red and reddish-black color, but no gallstones were found, nor was the duct of Wirsung dilated. In this connection Opie calls attention to the frequency with which gallstones accompany acute hemorrhagic pancreatitis—in fact, in thirteen cases that he has collected from the literature gallstones were present in ten.

One of the most interesting features of the case was the demonstration by Opie of a fat-splitting ferment in the urine, the method employed being the neutralization of the urine and its treatment with ethyl butyrate.

INFECTIONS WITH THE COLON BACILLUS.

Two years ago we reviewed a very interesting piece of work done by Dr. Henry Lee Smith under the direction of Professor Escherich on the "Varieties of the Colon Bacillus in the Diarrheas of Infancy," Smith devoting especial attention to the agglutinating peculiarities of the micro-organism studied. He showed definitely that the colon bacillus causing a diarrhea could be agglutinated by the serum of the infant from whose stools this especial bacillus had been grown, while it could not be agglutinated by the serum of other infants, notwithstanding the fact that they were suffering with diarrhea at the same time.

Kreisel (*Centralblatt für Bakteriologie*, 1901, Vol. XXIX, p. 6) has carried on further studies along these lines, also under the direction of Escherich. His results were entirely confirmatory of those obtained by Smith, but Kreisel carried on his investigations still further and attempted a series of animal experiments of interest.

In the first plea he prepared an immune serum by injecting increasing amounts of a bouillon culture of the colon bacillus obtained from the stool of an infant suffering with diarrhea into the guinea-pigs. The serum from the guinea-pigs so treated agglutinated actively the bacilli from the infant in question, but reacted negatively as regards colon bacilli from other sources. The same results were obtained by Kreisel in regard to the colon bacilli obtained from the stools of healthy adults, i. e., that such bacilli would be agglutinated by the serum of the individual in question, and not by other sera.

An especially interesting case is reported by Kreisel of an infant of two and one-half years suffering with a colicystitis in which the colon bacilli from the bladder were actively agglutinated by the patient's serum, while most careful lists showed that the colon bacillus from the urine was identical in every respect with that from the feces, suggesting that the vesicle infection had arisen from a migration of bacteria from the rectum to the bladder.

All Kreisel's experiments were most carefully carried out, and his results furnish very interesting data regarding a most interesting question—infections produced by the colon bacilli.

PATHOLOGY AND BACTERIOLOGY.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

A CONTRIBUTION TO THE STUDY OF THE PRESENCE AND FORMATION OF AGGLUTININS IN THE BLOOD. M. Armand Ruffer and M. Crendiropoulo. *British Medical Journal*, April 5, 1902.

Ruffer and Crendiropoulo contribute a paper on the formation of agglutinins in the blood. From their study they conclude:

(1) That cultures of a micro-organism, freed from that micro-organism by filtration, dialysis or centrifugalization, have a distinct, though feeble, agglutinating effect on that particular micro-organism. The age of the culture and the constitution of the medium are important factors in determining the quantity of agglutinins present in such cultures.

(2) That the red corpuscles of non-immunized and immunized animals contain no trace of agglutinins.

(3) On the other hand, the polymorphonuclear agglutinating power is greater than or, more rarely, equal to that of the serum. They may, therefore, be rightly considered as the producers, or any rate, the carriers, of the agglutinins.

(4) In immunized animals the specific agglutinins appear in the polymorphonuclear leucocytes, and are therefore probably formed in them. The quantity of agglutins begins to increase thirty to forty-eight hours after the injection, and goes on increasing up to the tenth day or thereabouts. They then pass into the serum, the agglutinating power of which increases correspondingly.

(5) That the formation of specific agglutinins in polymorphonuclear leucocytes and in the serum is preceded and accompanied during the first three or four days after the inoculation of a given micro-organism by an increase of agglutinins for other micro-organisms. This latter increase is of short duration, and stops suddenly, whereas the increase of the specific agglutinins persists for a much longer time.

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THE BACTERIOLOGY OF ERYSIPELAS. E. G. Pfahler. *Philadelphia Medical Journal*, April 19, 1902.

The investigations forming the basis of this article were made upon ninety-eight cases of erysipelas occurring in the wards of the Philadelphia Hospital. In a preliminary report the author described a diplococcus which he had found in pure cultures in eight successive cases of erysipelas. In the present series of ninety-eight cases growths of bacteria were obtained in eighty-eight cases, in eighty-six of which diplococci were found, being pure cultures in sixty-six cases. Streptococci associated with other organisms were found in only ten cases. The diplococci were obtained in cultures,

and in a number of cases cover-glass preparations were made from the serum in the vesicles which likewise showed the diplococci. In all the cases some antiseptic was applied to the skin before the bacteriological examination was made, thereby to a certain extent eliminating foreign organisms.

The author described the morphology of the organism as follows:

Spherical cocci, about the size of the pneumococcus, usually occurring in pairs, often singly, and very rarely a chain of four is seen. As observed in the contents of the pustules and in the blood from the rabbit, it has been seen only in pairs, and at times appears to be encapsulated. It is found both outside of and within the leucocytes. The diplococcus is stained readily by aniline gentian violet and by Gram's method; does not stain well with Loeffler's methylene blue.

It grows in the presence of oxygen, and best at 31° C. It is non-motile. Cultures in bouillon show a cloudiness in twelve hours. Glycerine agar at the end of twenty-four hours shows minute opaque colonies, pin-point in size, whitish in color, and sharply defined in outline after from five to six days. Blood serum shows a more luxuriant growth, the colonies being three or four times the size of those on glycerine agar, and proportionately raised above the surface. Gelatine is not liquefied, and there is no evidence of the production of gas. Litmus milk shows no change in reaction after fifteen days; does not grow upon potato.

Inoculation experiments into rabbits were uniformly positive. Twenty-four-hour bouillon cultures were used, and after twenty-four hours a perfect area of erysipelatous inflammation was seen encircling the entire base. At times small vesicles appeared at the seat of inoculation. Cultures and blood specimens were made on the third day of disease, and showed diplococci identical in morphology with those described in the cultures from the human cases. Inoculation upon guinea-pigs and white rats showed no effects.

As this diplococcus fulfills Koch's postulates, the author asserts that the diplococcus described is the most common cause of erysipelas, or of a disease which, in the light of our present knowledge, cannot be diagnosed from erysipelas.

* * *

THE ERASMUS WILSON LECTURES ON THE PATHOLOGY OF TUMORS.

Charles Powell White. *The Lancet*, February 22, 1902.

This is one of three lectures on the "General Pathology of Tumors," and deals with the relation of tumors to other pathological processes. White makes the following summary:

(1) Tumors are to be classified on a histological basis. The best mode of effecting this is to make use of the threefold basis of cells, tissues, and organs.

(2) The rudiment from which a tumor springs may consist (a) of the structures normally present at the point of origin; (b) of an embryonic collection of cells such as described by Cohnheim;

or (c) of tissues of new formation, the result either of an inflammatory condition or of a previous tumor formation.

(3) Extrinsic factors play a part in tumor-formation, but are not the determining factors, that is, the occurrence or non-occurrence of a tumor does not depend on extrinsic factors. In particular the parasitic theory is shown not to stand a critical investigation.

(4) The determining factor of tumor causation is to be found in the intrinsic factors.

(5) This determining factor consists in the existence of a condition of unstable equilibrium between the intercellular forces, so that proliferation, once started, is progressive, and is not limited by the resistance of the surrounding tissues.

(6) The causes of this instability are many and various, and may be either intrinsic or extrinsic.

(7) Proliferation having started, the cells acquire the habit of growth, that is, the power of independent proliferation, which enables them to proliferate in parts of the body in which the condition of equilibrium is stable.

(8) Tumors grow by the proliferation of their own cells.

(9) Tumors do not invariably continue to increase without limit. Under certain circumstances they may cease to grow, may diminish in size, or may completely disappear.

(10) Tumor formation is not to be regarded as an isolated process, but is to be considered as one of a group of progressive processes with which it is closely allied. Still less must one form of tumor, such as carcinoma, be considered apart from the others.

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A CONTRIBUTION TO THE PATHOLOGICAL ANATOMY OF PRIMARY PHLEGMONOUS (STREPTOCOCCUS) ENTERITIS. A. Moiseieff. Review, *Philadelphia Medical Journal*, April 19, 1902.

Moiseieff reports four cases of primary phlegmonous enteritis, due to the streptococcus pyogenes. Full accounts of the post-mortem findings are given, and the following conclusions presented:

(1) Primary (idiopathic) phlegmonous enteritis may occur secondarily to catarrhal inflammation of the intestines, owing to an extension of the infection into the submucosa, without any visible solution of continuity in the mucosa. On account of the hemorrhages and necrosis of the mucous membrane secondary superficial ulceration may take place. Microscopically areas of superficial necrosis are discovered, especially over the lymph follicles and Peyer's patches.

(2) Primarily phlegmonous enteritis has the character of a lymphangitis, accompanied in the beginning by edema of the connective tissue of the intestinal wall, and ending in a purulent infiltration. These changes are especially marked in the mucosa and muscularis mucosae.

(3) Phlegmonous enteritis is complicated early in its course by a suppurative peritonitis, owing to the rapid occlusion of the efferent lymphatics, stasis of the infected lymph, and back-flow into the

peritoneal cavity. The intensity of the enteritis does not stand in direct relation to the peritonitis, which may develop before any purulent infiltration into the mucosa has taken place.

(4) Phlegmonous enteritis is caused at least in the cases herein reported by the streptococcus apparently identical with the streptococcus pyogenes.

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THE DIAGNOSTIC VALUE OF THE VARIATIONS IN THE LEUCOCYTES AND OTHER BLOOD CHANGES IN TYPHOID AND MALARIAL INTERMITTENT FEVERS, RESPECTIVELY. Leonard Rogers. *British Medical Journal*, April 5, 1902.

malarial remittent fevers. He concludes:

Rogers contributes a paper on the diagnostic value of the variations in the leucocytes and other blood changes in typhoid fever and

(1) That the percentage of the different forms of leucocytes counted in a stained blood film is of great diagnostic value in differentiating typhoid fever and malarial remittent fever, and is easily ascertainable.

(2) That an increase of the lymphocytes to 40 per cent. or over, without any increase in the large mononuclears, points to typhoid as against malarial fever.

(3) That an increase in the large mononuclears to about 12 per cent. and upward, especially during the remissions of the temperature, strongly indicates malaria as against typhoid fever. The change is of great value when parasites are absent from the blood.

(4) That the presence of myelocytes in any number, such as from 1 to 5 per cent., points to malaria as against typhoid fever.

(5) That a high degree of anemia, such as a reduction of the red corpuscles to below 3,000,000 per c. mm., is much more frequently met with in malarial than in typhoid fever.

(6) That a very great reduction in the total leucocyte-count, such as below 2000 per c. mm., is much more frequently met with in malarial than in typhoid fever, while the proportion of white to red corpuscles in malarial is not infrequently less than 1 to 2000, which is rare in typhoid fever.

(7) That leucocytosis can be detected by the presence of a great excess of white corpuscles, upwards of 80 per cent. of which are polymorphonuclears, in a stained-blood film, and is often of service in distinguishing malaria from intermittent fever, due to liver abscess or other local inflammation.

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ULCERO-MEMBRANOUS ANGINA ASSOCIATED WITH THE FUSIFORM BACILLUS (VINCENT), WITH A REPORT OF TWELVE CASES IN CHILDREN. Jacob Sobel. *New York Medical Journal*, December 7, 1901.

The author reports twelve cases of this disease. In six instances the ulceration was found on the right tonsil, in four cases on the left, and in two on both. In size the ulcer varied from the nail of the little finger to involvement of the greater part of the tonsil. The

shape, for the most part, was irregularly circular or oval. As to the character of the ulcers, the term chancroidal seems most fitting, having a worm-eaten floor, the edges being on a level with or slightly elevated above the tonsillar surface. The disease is usually associated with some elevation of temperature, ranging from 101° to 103° , slight enlargement of the submaxillary glands, pain in the throat, and difficulty in deglutition. There is no fetor of the breath, unless the tonsillar ulceration is associated with that of the tongue, cheek, or gums.

The diagnosis rests upon the clinical and microscopical evidence. The most important distinction is from diphtheria and confluent follicular amygdalitis. The fact that one tonsil is usually involved, that the sub-maxillary glands are enlarged, and that the temperature is moderate suggests diphtheria. However, it differs from the latter in being an ulcerative process, and in an absence of any tendency to spread beyond the tonsils.

A positive diagnosis rests upon microscopical appearances. While in diphtheria very little reliance is to be placed upon the immediate examination of a *smear* from the tonsils, the opposite holds good in this condition, in which every reliance is to be placed upon the smear, and practically none on the cultures on ordinary media.

The best stain for the smears is Ziehl's solution of carbol-fuchsin. The organism associated with this disease is a bacillus about twice as long as the diphtheria bacillus and somewhat pointed at both ends (fusiform). Some are bent so as to make a crescent. Along with this bacillus is a spirillum, which is long and corkscrew-like. Vincent found the bacillus to be non-motile. The author says it is motile. The spirillum is rapidly motile. The spirillum is rapidly decolorized by the Gram method, the bacillus slowly.

In this condition little reliance can be placed on a positive diagnosis from cultures, while the opposite is true for diphtheria. The reason for this is that thus far no satisfactory medium for the growth of the fusiform bacillus in a pure *uncontaminated colony* has been found.

Sobel tried two media in his investigations—1. Blood-serum media; 2. Libman's culture medium (glucose serum-agar)—neither of which proved satisfactory. While all of Koch's conditions as to the relation of the fusiform bacillus to the disease have not been fulfilled, the following points make its specific character highly probable:

1. Their uniform presence in very large numbers or nearly pure cultures.
2. Their gradual disappearance during the process of healing, and their rapid disappearance when the ulceration heals.
3. The presence of so few other micro-organisms.
4. Cases in which the condition has been transmitted from one individual to the other.

Society Reports.

BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.

MEETING HELD FEBRUARY 24, 1902.

THE meeting was called to order at 8.30 P. M. by the president, Dr. J. L. Ingle.

Dr. Wm. Royal Stokes: "Exhibition of Pathological Specimens."

I have just a few specimens here to show which are not very rare, but I think are interesting as emphasizing certain points in diagnosis and treatment.

The first specimen that I wish to exhibit is from a case of laryngo-tracheal diphtheria. The case was one of Dr. Ruhräh's, which he has kindly allowed me to use. It was a case of pure tracheal diphtheria. If you will handle the specimen, you can see that there is no membrane at all in the pharynx. It begins on the under surface of the epiglottis, and extends down the trachea and into the bronchi. A point concerning the diagnosis in this case is of importance. We made several examinations for the diphtheria bacillus, and failed to find the organism, and that should always be borne in mind in examining cases of tracheal diphtheria, where there is no membrane in the pharynx. I have not infrequently had negative results from the examinations in these cases where the diagnosis has been confirmed by autopsy. It is rather difficult to get an ordinary swab, such as is used by the Health Department, into the larynx. The specimen is not rare, but is a good, typical case of pure laryngeal diphtheria.

The next specimen is from a case of endocarditis of the aortic valve, due to the streptococcus, and was of considerable interest to the clinical attendant. It was one with a temperature somewhat resembling that of typhoid fever, and a very positive diagnosis could not be made. They failed to get the Widal reaction or any other very positive symptoms, and not until autopsy was a decisive diagnosis made.

The autopsy showed, as you see in this specimen, an old, deformed aortic valve. The cusps are all deformed and shrunk, and in two there is an acute exacerbation. The middle cusp particularly is covered with a rough, irregular fibrinous deposit. It doesn't look like such a very serious matter as you view it here, but it caused a general streptococcus infection and death of the patient. It is a very characteristic appearance of a deposit of fibrin upon an old, badly-damaged valve.

The question of diagnosis between this and typhoid fever and miliary tuberculosis is of clinical interest. Typhoid may be distinguished by the Widal reaction, or in some instances culture from the urine. The streptococcus endocarditis may be differentiated from miliary tuberculosis by cultures taken directly from the blood, and these cultures are of considerable

diagnostic importance. In Dr. Cole's report in the *Hopkins Bulletin* of July, 1901, he described his method of taking these cultures as follows: The ordinary antiseptic procedures are taken in making the surface of the forearm sterile, and a very hot bichloride compress is applied, and serves to bring out the veins more clearly. The veins are compressed, and a sterile hypodermic needle is thrust into one of the superficial veins. He doesn't use the barrel of the syringe at all, but just the needle, and allows the blood to drip through it into his flask. One important thing to remember is that the pure blood itself is bactericidal, and the old method of allowing a few drops of blood to drip over a culture plate is unreliable for that reason. Cole's method is to withdraw 10 c. c. of blood, and allow 2 c. c., or thirty drops, to flow into a flask with 100 c. c. beef tea. This dilutes the blood about seventy-five times. The bacteria grow in the tea, and a plate culture can be taken and organisms isolated. Cole took cultures from fifteen cases of typhoid, and found typical bacilli in eleven of them. Some work has been done recently in isolating the pneumococcus from the blood in this way. Most of the cases where the pneumococcus were found proved fatal. Another investigator found the pneumococcus in fifteen out of sixteen examinations by this method of blood culture. I simply mention this in connection with endocarditis to show the possibilities of such examination as a means of diagnosis. In this case no blood culture was taken during life, but it was full of the streptococci, as was also the lung.

This third case is also a peculiarly interesting one. It is a typical example of a septic thrombus in the right auricle. These thrombi begin by a collection of the blood platelets, and around that nucleus strands of fibrin form, and in the meshes of this network there are many white corpuscles and some red ones. This is of interest as showing the mechanism of thrombi, which it is of importance to understand. If a thrombus is not full of bacteria, it may do little harm. When septic they cause the greatest amount of trouble. Little pieces are washed off and get into the kidneys and other viscera, setting up a septic condition there. This thrombus almost entirely fills up the right auricle.

I also have here an example of the horseshoe kidney taken from a child only four or five months old. And here is also an old museum specimen from an adult. They are not very rare, of course. They are supposed to be due to the fusion of the Wolfian ducts during embryonic development, the fusion forming a horseshoe-shaped viscus which almost always lies in front of the aorta and inferior vena-cava.

The last specimen I have to show you is rather a novel one. It is from the case of a woman fifty-six years of age, who had been sick for six months or more. She gave a history of chronic illness for about a year. She was brought into the hospital, and died within twenty-four hours. The diagnosis of uremia was made, the woman having suffered from uremic symptoms. At autopsy this remarkable set of specimens was found. There are renal calculi on both sides; no kidney tissue left at all. Both kidneys are large shells, containing molds of the calculi in pelvis and calices. Just at one or two places are little remnants of kidney tissue. The glomeruli are

obliterated, and practically no functioning kidney remains. The calculi entirely obliterated the kidney tissue and caused pyo-nephritis, and there was a great deal of pus in this shell of a kidney. There was also a cystitis, and the cultures showed the cystitis and the pus infection in the kidney to be due to the proteus vulgaris.

The chemical examination was also of some interest, but before mentioning that I want to say there has just been an ingenious theory brought forward concerning the formation of these calculi. As you know, the typhoid bacilli have a tendency to agglutinate in masses. They have a tendency to agglutinate in the urine, and it is thought that other organisms have this same tendency to agglutinate. It has now been suggested that perhaps these groups of bacilli may form the nucleus of the calculus. It is with some hesitancy that I comment upon the chemical examination of this calculus. In Professor Simon's chemistry the directions for making an analysis of calculi seem rather simple. In this case, by simply following out his directions, I think I made a correct analysis. He makes three divisions of calculi—those burning without flame, those burning with flame, and those that do not burn at all. I found that after being dried these calculi did not burn. I then made several tests, which showed that they consisted of phosphates of some kind. That is shown by dissolving the powdered calculus in acetic acid, and then precipitating it by the addition of ammonium molybdate dissolved in nitric acid. This gives a striking yellow precipitate. It was then determined to be calcium phosphate by the usual test for calcium. Simon says that the uric-acid calculi are the most frequent, next those composed of the urates, phosphates and oxalates, and rarely those made up of xanthin and cystin.

On both sides, then, these were composed of calcium phosphate. In conclusion, I wish to state that in one or two of these cases the laboratory examination was misleading, particularly in the case of laryngeal diphtheria, and here the clinical symptoms should be depended upon, but in other cases the employment of laboratory examinations, the blood cultures, etc., are of great diagnostic importance.

Dr. C. Urban Smith: I believe that in the great majority of instances bacteria form the nucleus for these renal calculi, and that this is especially true of the biliary calculi. The colon bacillus getting into the gall bladder, or into the liver itself, is often responsible for the formation of calculi.

Dr. Stokes: I think Dr. Smith is quite correct. In cultures from biliary calculi the colon bacillus has been found, and also the typhoid bacillus.

Dr. Smith: Is it possible to get a culture from one of these hard calculi?

Dr. Stokes: Yes, I think a culture can be made from them.

Dr. E. L. Whitney: "The Applications of Some of the Secretions of the Liver to the Treatment of Diseases of that Organ."

The subject of animal secretions has been so well investigated in recent years that it seems strange that the secretions of an organ of so much importance as the liver should have been so little investigated. It is an organ from which we have both an external and an internal secretion—the bile, with its number of ingredients, as an external secretion, and internally the

formation of urea and uric acid. It is not, of course, the only organ in which urea is formed, but is probably the chief one. Then it has a great deal to do with the elaboration of dextrose, and acts as a storehouse for the excess of carbohydrates taken at any time. Then it has other functions, as the storing away of certain poisons, shown by its action upon alkaloids in the administration of strychnia, for instance. It acts probably by storing away the alkaloids and giving them out slowly, so that the toxic effect is less sudden, and there is also probably to a certain extent an oxidation of some of them into harmless compounds. This is true of some of the oxidizing ferments recently isolated by Jacobi. It is believed now that these ferments have something to do with the question of immunity. Taking up the matter from a therapeutic standpoint, the external secretion, the bile, is probably of most interest. If there is an insufficiency of bile, there are certain important alterations in the intestinal digestion—there is poor digestion of fats, and where there is an impairment in the digestion of fats there will be at the same time impairment of the absorption of the proteids, as the fats form a mechanical envelope to the proteid substance and prevent their ready absorption.

The use of the bile salts, the active principle of the bile, or the desiccated bile itself, has often been recommended, and I believe the negative results referred to by some have been due to lack of care in the selection of cases, to taking cases without proper regard for the condition present. The bile salts, too, have a great deal to do with the matter of biliary calculi. While I do not wish to minimize the importance of bacteria in forming the nucleus of these calculi, I think it very probable that there will be no cholesterine formation into stone if it is held in solution by the bile salts. They do not form unless there is some chemical action to precipitate the contents of the bile. By dissolving up a certain amount of the bile salts in water, by no means as strong as the bile itself, cholesterine stones are dissolved or softened, so that they are very friable. Then, too, the action of the bile salts upon the liver cells is a decided one. A number of observers have found that bile salts are probably the only therapeutic agents that really produce an increase in the secretion of bile; that they are probably the only true chologogues that we possess; that podophyllin and the other so-called chologogues have probably no action in producing an increase in bile secretion. In cases of jaundice due to a viscid condition of the bile we find the administration of the bile salts followed by increased elimination of bile and clearing up of the jaundice. These salts are reabsorbed over and over again, passing through a regular circle. Their influence upon the glycogenic function of the liver, too, is interesting. We find where the bile salts are decreased—where this circle is interrupted—the amount of glycogen is much decreased. The bile salts have an important action in stimulating the liver cells and increasing the amount of glycogen stored away. I have seen some few cases of diabetes and ordinary glycosuria much benefited and a few cleared up entirely under the treatment with bile salts. In some of these cases there was no attempt at dietetic treatment. I remember one case, that of a traveling man, where, of course, it was impossible to follow out

any systematic dietetic treatment, that was cleared up under this treatment. Sugar disappeared from the urine three years ago, and there has been no reoccurrence up to the present time. The question of the use of some of the other ferments of the liver is one that has never been worked up from a clinical standpoint. You can readily see the possibilities of the use of the oxidizing ferment isolated by Jacobi. These oxidizing agents are closely related to the oxidizing agents of the vegetable kingdom. The proteolytic ferment of the liver is a very strong one and a very rapidly-acting one. It is possible, too, that the liver itself may have something to do with the elaboration of some of these ferments that we consider as being secreted by the stomach and pancreas, and that they may be carried to these organs by the liver. One of the reasons why experiments along these lines have not been done is perhaps the difficulty in determining definitely a lesion of the liver. It is all very well to diagnose an abscess of the liver, or a carcinoma, but the smaller lesions, the ones for which we have no names because of our ignorance of them, are the ones that present difficulties. It is to be hoped that soon we will have better methods of diagnosing them, and that they may be treated by the secretions of the liver itself.

Dr. T. W. Keown: "Report of Cases."

The first case I wish to speak of is one that came under my notice at the St. Agnes Sanitarium, a case that had been wandering around with the diagnosis of neurasthenia, and had been taking all the depressants in the catalogue. He was twenty-eight years of age, apparently in strong physical health, except that he seemed to be a burden to himself. He at no time felt like getting up and walking around. Every separate portion of his anatomy would at times have something the matter with it; his arms would be too heavy to lift, and if he tried to walk around, he felt as though he weighed a tone. He complained of headache a great deal. He looked very well nourished, and I do not think he complained of any other trouble except the general sluggishness and inability to get about. His pulse was very regular; he ate three times a day, and did not eat too much. At one time he had been a heavy meat-eater. Examination of the tongue showed it to be very much indented by the teeth, and it was heavily coated. His breath was more or less offensive. This, accompanied by the headache and general lack of energy, directed my attention to his organs of nutrition. I examined his stomach contents, giving him the regular test meals—the double test meal—one about 8 o'clock, and another at 12 o'clock. The first meal consists of a soft-boiled egg, some rare meat, a dish of rice, and a glass of milk; the second, a roll and a glass of water or a cup of weak tea. At 1 o'clock the contents are drawn. I had great difficulty in getting the contents to flow through the tube. It was simply a mass of mucus, with a mixture of all he had eaten that day. On testing it no free hydrochloric acid was found, and the total acidity was about one-third of normal. His stomach was washed out with a sodium and calcium-chloride solution to dissolve the mucus. When his stomach was perfectly clear I gave him his regular meals, and administered 10 minims of dilute hydrochloric acid about a half-hour after each meal. He soon showed decided improvement. His normal

energy returned, but he still had the headaches, and would lapse back again into his old condition of listlessness. Then I decided to give him the Neuheim bath treatment. He rapidly improved under this treatment, and in the course of four or five weeks was able to go back to his business. He had a great interest in baseball, and said that he now felt like going out and pitching a game. The point I desire to call attention to is the slurring over of such cases, putting them down as neurasthenia, when, perhaps, there is sufficient reason for the symptoms in some physical disorder. Here, of course, was a case of gastritis.

The second case I would like to report was also a case diagnosed as neurasthenia. The only symptom he complained of was that he was losing weight and getting weak, and that he wanted to lie down all the time. On getting up he had headache, which started over the eyes and in the frontal region. He was always napping on his couch or bed, and on getting up, would say his head felt as though it would burst. Examination showed a mitral regurgitation, and it is a wonder how this could have escaped notice. He did not complain of any heart-pain, but had complained of a feeling of oppression in that region and of dyspnea. I put him on powdered digitalis, and gave him salt baths. That was some time in the middle of December, and he has now resumed his duties. He has taken on about thirty pounds of weight. The digitalis when used by itself did not seem to give him the necessary relief, though he was getting one grain, three times a day. Oliver, in the London *Lancet*, says that one-half grain, morning and evening, is a sufficient dose. When the Neuheim baths were added there was marked benefit. In cases where the apex-beat is an inch to the left of the nipple, after these baths it moves over to the right of the nipple. That of itself seems wonderful, because the baths only contain a little sodium and calcium chloride.

The third case I would report is one that I did not diagnose at all until I had operated, and then hardly knew what I had found. The case was that of a young man who about a year ago fell on the ice, striking on the back in the sacro-coccygeal region. Shortly afterward he noticed in that region a small hole that constantly secreted a fluid, and the moisture gave him considerable annoyance. I cut down on it to see what was inside, and scraped it out with a curette. That occurred in March or April, and he came back last month with three holes this time. The one I had opened was a little larger probably, and there were two others down the median line of the back that you could get a small probe in. I entered the probe in the upper one, and pushed it down through the other two; injected a little cocaine, and slit the three holes into one, and found that I had opened into a sac that contained no pus or granulating surface. I scraped around with the knife, and then pulled out a bunch of hair. I thought at first that the opening communicated with the rectum, but on examination per rectum could find no communication. I curetted the sac thoroughly, and it is healing up very nicely.

Dr. Winslow: In regard to this last case, it is not an uncommon thing to find that these sinuses in the region of the coccyx contain hair. The so-called pilo-nodal sinuses very often contain a bunch of hair.

EUGENE LEE CRUTCHFIELD, M.D.,

Secretary.

Book Reviews.

SOLLMANN'S PHARMACOLOGY. A Text-Book of Pharmacology, including Therapeutics, Materia Medica, Pharmacy, Prescription-Writing, Toxicology, etc. By Torald Sollmann, M.D., Assistant Professor of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Ohio. Royal octavo volume of 880 pages, fully illustrated. Cloth, \$3.75 net. Philadelphia and London: W. B. Saunders & Co. 1901.

In place of the older works on therapeutics written by physicians rather than by physiologists or chemists, we are now having modern works on pharmacology, in which the rational sequence is followed—*i. e.*, first the consideration of the physiological action of drugs, and then the practical application of this to the cure and treatment of disease.

This, of course, has been largely brought about by carefully-performed animal experiments, and along these lines the work by Sollmann during the past few years has been noteworthy.

His book on pharmacology is especially interesting from the physiological and from the chemical point of view; but, due to the large amount of material which has been compressed into a comparatively small space, it will probably be of more value to the student and the practitioner than to the pharmacologist and scientist.

ANDER'S PRACTICE OF MEDICINE. A Text-Book of the Practice of Medicine. By James M. Anders, A.M., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine, Medico-Chirurgical College, Philadelphia. Fifth edition, thoroughly revised. One handsome octavo volume of 1297 pages, fully illustrated. Cloth, \$5.50 net. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co. 1901.

It has become an annual pleasure to write a notice of Anders' Practice, for the demand has been so great that every year sees the necessity for a new edition of this valuable work. By this means the book has been kept absolutely up-to-date in every respect.

In this edition the chapters on the etiology and mode of transmission of malaria and yellow fever have been entirely rewritten, while some new articles have been introduced, as streptococcus and acute diffuse interstitial nephritis.

The side of treatment is, as before, most thoroughly considered. B.

A TEXT-BOOK OF MEDICINE. By Dr. Adolf Strümpell. Third American from the thirteenth German edition. Translated by H. F. Vickery, A.B., M.D., and P. C. Knapp, A.M., M.D., with Editorial Notes by Frederick C. Shattuck, A.M., M.D. New York: D. Appleton & Co. 1901.

It is hardly necessary again to call attention to this well-known German work. In Germany it is a standard, and it may well be considered so, for

few medical works combine in a thoroughly satisfactory way such a broad and comprehensive view of modern medical ideas.

It is difficult to single out especial excellences, but it seems to us that especial mention should be made of the completeness with which Strumpell has considered the actiological factors and pathological changes of the various diseases, and the very able way in which the theories regarding the various diseases are discussed.

Shattuck's notes add greatly to the value of the text-book from the point of view of the American practitioner and student. B.

SIMON'S MANUAL OF CHEMISTRY. A guide to lectures and laboratory work for beginners in Chemistry, specially adapted for students of Medicine, Pharmacy, and Dentistry. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, in the Maryland College of Pharmacy, and in the Baltimore College of Dental Surgery. Seventh edition, thoroughly revised and much enlarged. In one octavo volume of 613 pages, with 66 engravings, one colored spectra plate, and 8 colored plates representing 64 of the most important chemical reactions. Cloth, \$3 net. Philadelphia and New York: Lea Bros. & Co. 1901.

Simon has attempted rather a herculean task in his Manual of Chemistry, for he has apparently had before his mind two distinct motives—first, to incorporate into his work all the important new achievements along all the divisions and subdivisions of the science of chemistry; and second, to furnish a text-book for beginners in chemistry, especially those attending schools of medicine, dentistry, or pharmacy.

Thus in the book are considered secretion, chemical physics, principles of chemistry, non-metals and their combinations, metals and their combinations, analytical chemistry, organic chemistry, and physiological chemistry.

Inevitably this has produced a work which must prove somewhat confusing to the student, while the chemist writhes rather actively at the few words given to some of the most interesting questions in his science.

Nevertheless, until chemistry is required for admission to all our medical schools, such books are necessary, and we have seen none which covers the subject in a better way than Simon's. B.

LOCKWOOD'S PRACTICE OF MEDICINE. By George Roe Lockwood, M.D., Professor of Practice in the Woman's Medical College of the New York Infirmary. Second edition, revised and enlarged. Octavo volume of 847 pages, with 79 illustrations and 20 full-page plates. Cloth, \$4 net. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co. 1901.

This type of book, although apparently necessary to the medical student, is peculiarly unsatisfactory to the student of medicine. It is not written because its author has a message to tell, but evidently because he has students to teach. It is probably not the author's fault that such books are published, nevertheless it is probably of books builded on such foundations as these that the philosopher of the past was wont to cry, "Oh, that mine enemy would write a book!" B.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, JUNE, 1902.

A SUBSTITUTE FOR INTERSTATE RECIPROCITY IN THE LICENSURE OF PHYSICIANS.

At the coming meeting of the American Medical Association a new idea on the subject of licensure of physicians will be considered. The plan is a conception of Dr. W. L. Rodman of Philadelphia, and is so interesting that one hopes it may be found practical. We have all reluctantly concluded that the vexatious restrictions imposed by the various States upon professional liberty are not removed by any sort of reciprocity among State licensing boards, and it is not within the power of the federal government to set up a standard of qualification for the practice of medicine.

Certain branches of the federal government do, however, determine by examination the fitness of applicants for places in the medical service of the United States, and physicians who belong to the medical departments of the army, the navy, or the Marine Hospital Service are admitted in all the States as qualified practitioners. Taking advantage of this latter circumstance, Dr. Rodman proposes the formation, without warrant of law, of a board of examiners, composed of the surgeons-general of the army, navy, and Marine Hospital Service, with two men of high professional standing selected by the American Medical Association, and one selected by the American Congress of Physicians and Surgeons.

This board would meet annually in Washington in June or July, and would conduct examinations, both theoretical and practical, of all applicants presenting proper credentials and paying a fee equal to the highest fee now required by any of the State laws.

The certificate granted by this board would guarantee proficiency equal or superior to that now required by the national medical services and accepted by all the State laws upon the subject. The existence of such a board would, Dr. Rodman believes, induce ambitious young men to seek its diploma, even if it were not recognized by the laws of many of the States. Medical men certified by this board would, as Dr. Rodman says, have a very material advantage in seeking appointments as contract surgeons in the army, navy, and Marine Hospital Service, physicians to Indian agencies, pension examiners.

Whether all the States would amend their laws so as to admit to practice the holders of such a diploma is perhaps doubtful, but that many of them, and those the most advanced, would do so hardly admits a doubt. This objection was considered when Dr. Rodman's plan was under discussion at Washington, and is said to have been disposed of by Dr. Wm. H. Welch, who said that failure to recognize the diploma of such a board would make a State ridiculous.

The surgeons-general of the army, navy, and Marine Hospital Service have agreed to participate in the work of such a board.

This plan offers but little to the practitioners of some years' standing who fear a severe test in some of the primaries, but it is doubtful if any plan could be devised to meet the needs of the belated, unless it should seem fair to waive the infirmities of age. Ambitious young men would, however, find substantial attractions in the certificate of such a body of examiners as Dr. Rodman proposes.

ONE GOOD WORD FOR THE BEEF COMBINE.

It is said to be an ill wind that blows nobody good, and it is generally agreed that the beef combine has raised an ill wind. Here in Maryland this conspiracy of greed has been followed by one unexpected result which is noteworthy, because it has conferred a temporary benefit. The prevailing high prices have nearly emptied the farms into the stock-yards, and scrub stock has sold especially well. Probably so many tuberculous cattle never before came to Baltimore in an equal period of time. But the inspectors of the city and State have bagged little game. The confiscations have been indeed rather light.

A cattle dealer at Union Stock-Yards stopped the other day before a pen of scrub cattle, and, on being told that they belonged to one of the worst pudding butchers in Baltimore, said that it could not be true, because ——— never had as good-looking "a bunch of scrubs." It was indeed a remarkable circumstance that the sausagemaker should have been able to collect such a lot of stringy old-timers, and more remarkable that he was willing to leave them for an hour or two on the inspectors' regular route, for this butcher buys quickly and quietly, gets his stock away promptly, slaughters at unseemly hours and in unknown places, all for the sake of avoiding official inspection. It is fair to add that he never murmurs when an inspector confiscates some of his *delicatessen*.

Now, the fact which explains these curious phenomena is that buyers from New York were here and snapped up the consumptives, with other boneracks, at prices which drove the Baltimore caterers nearly frantic. Local dealers to whom carloads of scrub stock were consigned found that the New Yorkers were not afraid to buy any animal that could stand up, and since the State of Maryland does not confiscate cattle en route to another State, the dealers were able to diminish their risk as well as to increase their profits by selling to the Northern buyers.

And so it has come about that the sausagemakers of Baltimore are at present utilizing the venerable bodies of sinewy squires and dames who can make a day's march over country roads without distress, while the soft young consumptives go by rail beyond the State line.

The New York buyers also carried off all the worst cuts found in the

cooling-rooms. To the dismay of local retailers of poor meat, the "rattlers" were all sold to New York. "Rattler" is not in Gould's Dictionary, but the word is just as good, and so is the dictionary. Take a half of thin cow or bull beef as it hangs by the hind leg, cut in from navel through the abdominal wall to, but not into, the loin muscles; now cut straight down (the carcass is head downward) through the ribs in the axillary line to the shoulder joint, then cut out horizontally through the spine. Your cut, including the neck, foreleg, brisket and ribs of a bonerack, is a rattling bad piece of meat. This is the "rattler" which goes to New York, while the less sonorous steaks and roasts remain in Baltimore. The poor people of this city suffer a hardship in the diversion of this rough meat from the local market.

SUMMER MILK.

THE season of the slaughter of innocents is now open. In this issue we print a timely and instructive paper by Drs. Knox and Bassett, based upon studies of the milk supplied to infants admitted to the Thomas Wilson Sanatorium in 1901. These observations show very clearly the exact relation between the rising tide of sickness and mortality among infants and the rapidly progressive deterioration of milk in summer. If Baltimore babies are at any disadvantage as compared with the bottle-fed infants of other cities of equal size, it is perhaps in the higher initial contamination of Baltimore milk. The city has long permitted the production of milk under the worst hygienic conditions in quarters already crowded with humanity. Such milk cannot be good food for infants at any season. After a long and earnest contest the city fathers have been persuaded that the city cow stable should be abolished, and with the passage of the Eisenbrandt ordinance a start at least has been made toward a better milk supply for the poor. Possibly we may realize a somewhat lighter infant mortality in 1902, though a convincing improvement in the figures is hardly to be expected.

The product of the city dairy is not, apparently, a large part of the city supply, but it all goes through the dirty hands that serve the poor, so that its lack of quantitative importance is perhaps made up in virulent energy.

The feeding of infants in the homes of the poor is an extremely special problem, widely distinct from the questions of food and drink that are of recognized public concern. The difficulties are hardly likely to be solved in a practical way by boards of health, for official supervision can never reach the daily rations. The most intimate contact ever made by a board of health with this problem was probably the Buffalo ordinance against the long-tube nursing bottle.

The teachings of the laboratory have led to greatly improved results in the management of certain diseases of infants and to still larger profit in the prevention of those diseases, but in these benefits the children of the poor do not fairly participate.

Up to the present time the most successful campaigner in this field has been an enlightened philanthropist. The results of the distribution of Strauss milk among the poor in New York illustrate much besides the negotiable quality of the problem, but they show nothing more clearly than that success depends first and last upon the defeat of ignorance in a hand-to-hand engagement. It is to give good heed with good milk.

Medical Items.

CONSIDERABLE outbreaks of scarlet fever are reported in Howard county.

THE Huxley lectures for 1902 will be delivered by Dr. William H. Welch.

DR. WM. OSLER is resting at Atlantic City, and Dr. Tiffany in Accomac county, Virginia.

DR. ENOCH GEORGE of Denton succeeds Dr. Jacob L. Noble of Preston as health officer for Caroline county.

DR. C. R. SCHELLER has been appointed health officer for Washington county to succeed Dr. O. H. W. Ragan.

DR. CHARLES COCKEY of Queenstown succeeds Dr. James Bordly of Centreville as health officer for Queen Anne county.

DR. CHARLES W. WAINWRIGHT of Princess Anne succeeds Dr. Clotworthy Birnie as a member of the Lunacy Commission.

THE hospital for tuberculous patients at Cedar Mountain, Conn., was opened on May 1. The cost of the hospital was \$47,000.

Two new appointments to the State Board of Health are Dr. Morris C. Robins as medical assistant and Dr. C. Rohrer as assistant bacteriologist.

EXAMINATIONS for admission to the United States Marine Hospital Service will be held on June 16 at the Marine Hospital Bureau, Washington, D. C.

THE entire staff of the Jamaica (L. I.) Hospital has resigned rather than serve with a double staff composed equally of regulars and homeopaths.

A SITE has been chosen for the new hospital at Cambridge in the "west end" overlooking the beautiful Choptank river. The lot is 420x240 feet in size, and cost \$2500.

THE bill to enlarge the powers and change the name of the United States Marine Hospital Service to the United States Public Health Service has passed the Senate.

A YOUNG man who had been badly beaten on May 3 died on May 14 in Bellevue Hospital, and at autopsy a portion of knife-blade was found embedded in his sternum and pericardium.

DR. ROBERT L. RANDOLPH has captured the Boylston prize for 1902 with a paper on "The

Rôle of Toxins in Inflammations of the Eye." The essay is based upon experimental work.

CAPT. RICHMOND PEARSON HOBSON, U. S. N., delivered the address to the graduating class of Maryland Medical College on May 13. Captain Hobson was the guest of Dr. J. G. Linthicum.

IN New Orleans an ordinance is now under consideration requiring cisterns to be screened in order to prevent the breeding of mosquitoes. The proposed ordinance has been approved by the Orleans Parish Medical Society.

A BILL to regulate the height of buildings in the District of Columbia is now pending. It proposes to limit the height of residences and apartment-houses to a maximum of sixty feet, and business houses to seventy-five feet.

THE Maryland Public Health Association meets at Denton on June 3 and 4. There will be papers by Dr. T. C. Gilchrist, Dr. Jos. E. Gichner, Dr. Wm. R. Stokes, Dr. C. Hampson Jones, Dr. John S. Fulton, and Dr. Enoch George.

A COMMITTEE, consisting of Dr. Wilson of New York, Dr. Ball of Delaware, and Dr. Shewalter of Pennsylvania, members of the House of Representatives, will stock a chest of medicines and surgical instruments for emergency use in case of illness, accident, or violence to persons attending the sessions.

THE army medical department has sent a relief expedition to the aid of the sufferers in the Martinique disaster. The expedition is in charge of Assistant Surgeons J. B. Clayton, J. R. Church, and J. H. Reilly, and includes six enlisted men from the army hospital corps. The equipment is for two regimental field hospitals.

A COMPLIMENTARY dinner will be given to Surgeon-General Sternberg by prominent physicians of the United States on June 13. The dinner will be given in New York, and is an expression of appreciation of the scientific achievements and public services of Dr. Sternberg, who is shortly to be retired from the army.

DR. REUBEN J. H. TALL died on May 12 at his home, 1417 McCulloh street, after an illness of several years. Dr. Tall was born in Dorchester county, Maryland, fifty-nine years ago. He was a graduate of the University of Maryland, and for thirty years practiced medicine in Baltimore with marked success. A widow and one son survive him.

THE Board of Health of New York city has amended the anti-spitting ordinance so as to provide a fine for spitting upon the sidewalks or on the floors of tenement-houses, public halls, theaters, hotels or other public buildings. This extension of the law was made upon the recommendation of Dr. Herman Biggs, the medical adviser of the board.

UNDER an enactment of the recent legislature Baltimore county has fifteen local health officers, one for each district. The president of the new board is Dr. J. F. H. Gorsuch of Fork, and the secretary is Dr. T. Ross Payne of Corbett. The other medical officers are Dr. Geo. Y. Everhart, Dr. L. Maylor, Dr. F. Rich, Dr. J. C. Schofield, Dr. C. L. Mattfeldt, Dr. Frank Ruhl, Dr. Baldwin.

A DAUGHTER of John Alexander Dowie, the notorious Chicago quack, was recently burned and died after about fifteen hours. She was using an alcohol lamp at her toilet. The lamp exploded, setting fire to her clothing. When her wretched parent discovered that the poor girl was about to die he sent for a physician. Dowie's hardihood must have been cruelly tried. It is a pity on account of both the father and daughter that the physician could do no good.

A NEW YORK paper printed recently the story of a prospective mother who had gold fillings put into two of her front teeth at about the third month of her pregnancy. The baby is now teething, and her two front teeth have the appearance of being filled with gold. The father is said to be a physician and a member of the Board of Medical Examiners of Pennsylvania, and he has found that the whole thickness of the tooth consists of the yellow metal. Perhaps the thing might work with guinea-pigs.

A NEW clinical building is to replace the present amphitheater of Johns Hopkins Medical School. It is to be five stories in height, and will occupy a ground space of 112x100 feet. The basement floor will be devoted to accident-rooms, waiting-rooms, dispensary, and operating-rooms. Examination and class rooms, dispensary and a large lecture-hall will be on the first floor. On the second floor there will be sick-rooms and record-rooms. A large lecture-hall, with bacteriological and clinical laboratories and museum, will be on the third floor, which is to be devoted to teaching surgery. The fourth floor will also be devoted to surgery, and will have an anesthetizing-room, preparation-room, operating-room, sterilizing-room, amphi-

theater, recovery-room, and surgeon's office. The top floor will be used for photography.

THE month of May promised badly for the spread of smallpox. Five cases in all occurred in Baltimore city, and of these two cases were not traceable to any known antecedent case. These cases were not, however, followed by any later developments, and a period of incubation has passed since they were removed to quarantine. The outbreak in Allegany county has subsided. The last case was that of Dr. Cunningham, who, although attending an infected family, had never been vaccinated until within three or four days of his attack. A young white man who had been exposed at Pinto developed a varioloid so mild that it attracted no attention. He returned to his home in Washington county near Hancock with the eruption on him. Here he began to work in a bark-peeling camp. His cousin, who slept with him, died of hemorrhagic smallpox, and two other cases developed in the same family. But one case is reported in Caroline county, where there were eight or ten a month ago. Two cases have been reported in Dorchester county during the month, and one case in Somerset.

THE newly-appointed health officers for Baltimore county are: First district, Dr. Charles L. Mattfeldt, Catonsville; second district, Dr. John E. Bolte, Tyler; third district, Dr. Henry A. Naylor, Pikesville; fourth district, Dr. Harry M. Slade, Reisterstown; fifth district, Dr. J. H. Drach, Butler; sixth district, Dr. Jos. S. Baldwin, Eklo; seventh district, Dr. Thomas Baldwin, Gemmill; eighth district, Dr. T. Ross Payne, Corbett; ninth district, Dr. Frank R. Rich, Towson; tenth district, Dr. Thomas H. Emory, Hess, Harford county; eleventh district, Dr. Jas. F. H. Gorsuch, Fork, Baltimore county; twelfth district, Dr. J. C. Schofield, Highlandtown; thirteenth district, Dr. Frank H. Ruhl, Lansdowne; fourteenth district, Dr. George S. Everhart, Hamilton Station; fifteenth district, Dr. John W. Harrison, Middle River. These officers are appointed under a new local law, and each of them in his own district has all the authority of a local health officer. With the county commissioners, these medical officers constitute the County Board of Health. Dr. J. F. H. Gorsuch is the president, and Dr. T. Ross Payne the secretary. Their salaries range from \$150 to \$300 per annum. The medical members of the board do not have a vote on questions of expenditure.

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ARE THE PURPOSES OF OUR ORGANIZATION IN ACCORD WITH UNRESTRICTED INTER- STATE MEDICAL LICENSURE?

By J. McPherson Scott, M.D.

PRESIDENTIAL ADDRESS DELIVERED BEFORE THE MEDICAL AND CHIRURGICAL
FACULTY OF MARYLAND ON APRIL 22, 1902.

WE can review the record of the year with great satisfaction. At the last annual meeting contributions were freely made whereby the debit balance shown by the Treasurer's Report was quickly liquidated. I am informed by that officer that there is at present no debt upon the property of the Faculty, but the Faculty owes about \$400 to members who loaned money some years ago. Similar notes have from year to year been donated to the Faculty, and this sanguine gentleman thinks that sooner or later all of them will be wiped out by donation. This prosperity calls to mind the reply of the man of wealth to the query of a friend: "I wonder what I would do if I had a million of dollars?" The reply was: "Do like the rest—try to get another million." So I suppose we will soon be acquiring additional property, materializing some scheme whereby our comfort and usefulness may be increased. The semi-annual meeting held at Elkton may be said to have been noteworthy in the character and variety of the topics discussed. The attendance was above the average, and the intelligent participation in our deliberations by our professional brethren from Delaware contributed greatly to its interest. Already under great obligations to the members from Cecil county, the Faculty regards its debt augmented by the social courtesies of which it was the recipient. The meeting was most gratifying to all who participated, and I wish to be permitted to thus publicly express my own and the Faculty's acknowledgments to the friends from Cecil.

The story of the past is true and unchangeable. It is beautified with heroic and ennobling work, or draped with disappointments and sorrows. Futurity is the realm in which our aspirations must be energized and experience their realization. Whatever may be their nature, whatever their purpose, however gigantic their scope, neither man nor organization has ever planned,

aspired or worked for failure. Accomplishment, success in all the varied and gorgeous coloring with which imagination can enrich it, is the aim and purpose of effort. However laudable or ignoble the aspiration, every obstacle in the way of its full fruition must yield, and it is for us as individuals or in our organized capacity as a Faculty to take unto our hearts the great measure of responsibility for our thought and action. The present thought is the parent of the future deed, and in the unceasing roll of time our act is quickly transformed into history, and although in the multitudinous occurrences of human activity it may not be recognizable, it nevertheless exists, and the heaven works, just as the atom of matter in the physical world is never lost, but continues its function of enrichment and growth, so that what we think, what we do, is soon what we thought, what we have done, and is left upon the page of life to exert its influence, it may be in alleviating the ills of humanity and strengthening our profession that it may bear itself nobly and successfully in its great conflict, or be a record against us to the debasement of mankind and to our own dishonor.

My reflections carry me back to the founders of this organization, and from the aspirations and purposes which were manifest in their lives, and the great work which they planned, we can indeed refresh ourselves. What they planned for their future has become their past, has become the history of this Faculty—is a fountain from which we can quaff living waters for the cleansing, rejuvenation and strengthening of this body. In our contemplation of results accomplished we are very prone to consider the achievement alone, to be impressed by the skill of the performance. We unintentionally fail to associate with what is so prominently before us the past environments, the sacrifices and embarrassments, whose removal was prerequisite to the development, the realization of that which claims our admiration by its vigor, its proportions, its beneficence. The preamble of the act of incorporation of the Faculty reads: "Whereas, it appears to the General Assembly of Maryland that the establishment and incorporation of a Medical and Chirurgical Faculty or Society of Physicians and Surgeons in said State will be attended with the most beneficial and salutary consequences by promoting and disseminating medical and chirurgical knowledge throughout the State, and may in future prevent the citizens thereof from risking their lives in the hands of ignorant practitioners or pretenders to the healing art; therefore, be it enacted by the general assembly of Maryland, etc., etc." It appears that the same subjects influenced medical thought then as today—the promotion of medical knowledge and the protection of the public from the ignorant and designing. We are at liberty to assume that inasmuch as the charlatan was then in evidence, the act of incorporation, with its restrictions, was not received for the mere asking. It was as necessary that personal presence and influence be manifest in the flesh at Annapolis then as at recent sessions of the legislature, but at what cost of time, money and inconvenience compared with our present easy and agreeable methods of transportation by swift and

luxurious vessels and cars! How different the conditions! In themselves they furnish us an inspiration. We have no means of verification, but I doubt not that, relatively speaking, out of the 101 men named in the act of incorporation there were more physicians in Annapolis in 1799 urging its passage than were present during recent sessions of the General Assembly pleading the passage of laws essential to the promotion and dissemination of medical and chirurgical knowledge, the preservation of professional character and honor, and preventing the citizens from risking their lives in the hands of ignorant practitioners or pretenders to the healing art. In a recent reading I met this forcible presentation of a sentiment to which we can all subscribe and can apply to our relationship to this honorable body: "A man who thinks of his ancestors will think also of his descendants. He will not want to place the first blot upon a clean and honorable family record. He will avoid action that will bring upon him social or business dishonor, and will strive to hand down to children worthy to bear it the name that in the past has been synonymous with unselfish patriotism and personal integrity." This honorable family record, gentlemen, this Faculty with an untarnished glory, is our heritage. It descended to us from sturdy, vigorous, self-reliant gentlemen, abreast of their times, and carrying with them into every relation of life professional dignity and pride. We have received from them this inheritance. How we have cared for it this splendid building, freed from debt by our own money, answers; this library, without State or city aid, stocked with rare and useful books by friends and members, is mutely eloquent; this roll of membership, carrying the names of men going about, in obscure corners of the State it may be, but doing good as their hands find it to do; enriched with the names of others who not only represent the highest types of individual life, but are known throughout the world as authorities in medicine, surgery and kindred sciences; this city, which has become a great center of learning, and from whose hospitals and medical schools there is a constant outflowing stream of beneficence to mankind, attest that the great purpose of our progenitors, that medical and chirurgical knowledge should be promoted and disseminated throughout the State, has had its triumphant realization.

The second proposition in the act of incorporation, namely, that the citizens may be prevented from risking their lives in the hands of ignorant practitioners or pretenders to the healing art, has for some years been receiving much attention from the public and the profession from one end of this great country to the other. While in the older days the medical mountebank and pretender plied his calling with a great measure of success, I have no doubt, upon a credulous public, which, according to the judgment of a keen observer of mankind, has always loved to be humbugged, it was only when the grossest fraud and commercialism manifested itself that the profession, aroused by the indignities being heaped upon it by bogus "medical colleges," "diploma mills," and "doc-

tors" turned loose after nominal attendance and a fee graded by willingness to pay, that public interest was slowly awakened, and the State turned its weary look toward these medical incubators. The process was quick evolution. "Doctors" were hatched with greater rapidity and certainty that a "cluck" ever produced a brood. The rustic warning of "not counting chickens before they are hatched" utterly failed in its application to the hatching of doctors back in the seventies. The medical hen would cover as many eggs as were paid for, and a brood was guaranteed without any fixed period of incubation. I am speaking *ex cathedra*, for while, with several hundred others, at the University of Pennsylvania I was doing hard work at lectures and clinics this iniquity of grinding out "doctors" was going on at "Buchanan's Medical College," under the very shadow of the university. The recklessness, the effrontery with which it was conducted did more, I believe, in arousing the people and the profession to the necessity of throwing restrictions and safeguards around the entrance to the medical profession than any other single instrumentality. Regulation or restriction of entrance did not spring from unworthy or commercial motives. It was in no way associated with a desire to prevent worthy, high-minded, capable men coming into the ranks. Public sentiment was so pronounced that without any special legislative enactment on the subject the edict went forth: "You cannot practice here unless you come certified by the diploma of a duly incorporated and accredited medical college that you have attended the full course of lectures, and that your certificate or diploma has been issued only after examination as to your proficiency." For awhile the effect was most salutary, and could the public sentiment thus expressed have continued, there would have been no need for special legislation; but driven out of one hiding-place with his trick exposed, the scamp quickly cloaked himself with a supposedly effective disguise, sought another locality where his personality was unknown, and soon resumed his nefarious practices, concealing his trail by the wisdom gained in past experiences. Thus instead of the "diploma mill" of the seventies, we had a few years later medical colleges without number springing up with a mushroom growth all over the country, and in localities no more adapted for a medical school than a desert would be for an Eden. These institutions were apparently conducted along proper lines, the prescribed curriculum was up to the standard requirements, the course of study was prolonged, but it soon became apparent to the better men that it was only the semblance of a purpose to do right. Graduates were being turned out as "thick as autumnal leaves that strew the brooks in Vallombrosa," possessed of neither academic nor medical training. This condition was possibly worse than that caused by the grind of the "diploma mills," as surrounding these colleges was the air of virtue. They were legally incorporated, they were apparently conducted conformably with established standards, and no one would rashly assume the responsibility of declaring that their work was defective and that those carrying their certificates as passports to

public confidence were unworthy of confidence or unfitted for the duties and responsibilities of the physician. And right here, in this great emergency, the medical profession performed one of its acts of greatest heroism; but we are, my brethren, not unaccustomed to the heroic. The man who struggles with pestilence, and, thoughtless of self, exposes himself to the contagion of mortal disease, risking health and life in his ministrations to his fellow-man, could not shrink when he found that his standard of professional honor and attainment was being lowered. The great army of physicians throughout the country realized that a crisis was upon them, and the resolution was quick and universal that this wrong should cease. Commercialism had no place in molding the mind of the profession. Its only purpose was to shield the public from the ignorant and the pretender, and protect its own character. The true and honorable physician was humiliated, the profession was dishonored, but the public was the chief victim; yet the public failed to appreciate its danger, and raised no protest. To the eternal credit of the medical profession be it said that it met this great emergency in the broad spirit of maintaining its own honor and of discharging its immeasurable responsibilities to humanity. The results can be briefly summarized in the statement that in every State and Territory of this great republic, except Alaska, legislation has been secured by medical men to regulate admission into medical practice. The Medical and Chirurgical Faculty of Maryland is distinguished as being among the first to take decisive position upon this question. It is of little moment whether or not an examining board is appointed by the State or by the State medical organization, as in Maryland; the wise and beneficent purposes of the fathers have been realized.

Naturally many problems will arise from the operation of these laws regulating medical practice, and the profession will be confronted with their solution. One of the most complex, by reason of the geographical or territorial divisions constituting the republic, and the fact that each State has its own law and its own examining and licensing board, is that of interstate medical licensure. It affects the individual physician. The profession at large is in no special manner disturbed by the various methods which have been considered for simplifying the migration of physicians from State to State, but to the medical man who, for one cause and another, desires to work in a new territory it presents features often extremely embarrassing and in many instances prohibitive. The question involved is, how is the physician who has complied with the law regulating medical practice in the State in which he is engaged in practice—New York, for instance—to become a legal practitioner in the State of Maryland? He may have taken his examination immediately after his graduation, when his mind was fresh and richly stored with knowledge upon medical subjects generally, when he had been coached by professors and quizmasters who had, perhaps, assisted him with examination questions gathered from the published proceedings of various State

examining boards, and he may have been brilliantly successful in securing his right to register. But years have passed. The equipment which had been so well primed and burnished for the first conflict has become dull and rusty, and as one condition and another suggests a change of residence and another field of labor, the physician hesitates, for the contemplated change involves another examination, which he now doubts his ability to pass. He has lost that universality and monopoly of knowledge peculiar to the young, but he has become enriched with a vast fund of learning gathered at thousands of bedsides of suffering and among the rough experiences of an active life. His ability as a physician and surgeon is unquestioned, has been demonstrated time and time again throughout the section in which he has resided, he has made for himself a spotless character, and yet the freedom of his life, his ambition to attain a greater success by work in a broader field, is checked. The requirements of an examination stand in his way. This is one of the sidelights thrown on the picture of reciprocal licensure, and our sympathies are with the broadminded, honorable, ambitious physician from New York who wishes to become one of us, and whom we would gladly welcome. Let us have another light thrown on this picture. A young man secures from the Board of Medical Examiners of Michigan, as a result of successful examination, a license to register as physician and surgeon. He likewise is brilliant and well equipped, and starts upon a career with apparently a rich promise of success. The expectations of himself and friends do not find that realization so sanguinely looked for. Disappointment oppresses and embitters the young life, and gradually the mercenary element asserts itself, and the moral tone of the individual becomes so blunted that he turns away from the standard of pure professional life that had been his ideal, and is found engaging in practices that bring him to the notice of the authorities. He has complied with the requirements of the law of his State, yet he falls under the stress of impecuniosity or moral perversion. He is confronted by criminal proceedings, is tried and convicted for improper use of the United States mails in forwarding medicines for the procurement of abortion. With the penalty for the wrongdoing satisfied, he seeks a larger field as presenting finer opportunities for the successful prosecution of his iniquities and affording better chances of immunity from detection, and he is induced thereby to apply to the board of examiners of another State for license to register as physician and surgeon. Under an unrestricted interstate medical licensure, except the payment of \$50, this individual is received and granted all the standing as a professional man that may attach to registration as such. You have in this sketch a presentation from real life of the easy way, or open door, of an unrestricted medical reciprocity.

As secretary of the Board of Medical Examiners of Maryland it has been within the range of opportunity for me to note the various aspects in which this subject may present itself to the individual physician desiring to avail himself of its privileges, as well as the damage it may easily inflict upon the profession and the

State by opening the door to the horde of unworthies. We have observed the manifest design of many to secure a license in a number of States, and we confess our inability to understand the motives of the applicants in so doing. The admission has been freely made by applicants that it is their purpose to secure registration in as many States as possible. Whether it is done in order to be already booked and licensed, and thus protected from any change in the law, or whether it is for the purpose of engaging in quackery in one State, and then, after the territory has been worked, migrating to another in which he had been previously registered, and there continue his practices, we are unable to determine. Nothing could so successfully contribute to this performance as an unrestricted reciprocity, of which we can furnish a proof gathered from our experience. At an examination about to be held by the Board of Medical Examiners of Maryland several years since a physician from Washington appeared on the morning of the examination, and stated to the secretary that he had just learned that the examination would be opened that morning, and that he had come over from Washington to take it. He had failed, he was well aware, to make his application in the time named in the announcement, but he hoped he would not thereby be barred. My predecessor, who was then in charge, was, and is now, as you all well know, a gentleman of most obliging disposition, said, "Certainly, we will waive the preliminaries; but as you say you have been practicing for some years, why do you take this examination? The law provides a 'special examination' for practitioners that would suit you much better. Why not take it?" The applicant, profuse in his appreciation, said that he would accept the suggestion. With the close of the examination I became secretary, and in a short time received a request from the Washington physician for a blank application for the examination provided for practitioners of other States contemplating change of residence to Maryland. The form was sent, and soon returned, correctly filled as to graduation, residence, place of practice, etc. A rule had just been adopted for such cases, which has since been closely observed, and an inquiry was directed to the secretary of the Board of Medical Supervisors of the District of Columbia as to the moral and professional standing of the applicant. The answer soon came, that, although a registered physician, he had been associated with a much-advertised consumptive curer well known in Washington and Baltimore. The applicant was thereupon notified that if he could explain this association the Board would consider his application. He made no reply, and he has not been heard of.

Your attention has been drawn to this experience to show the evil arising from an unrestricted licensure. This applicant had complied with the law of the District of Columbia. He had, however, evidently "fallen from grace," had engaged in flagrant quackery, and was seeking a new field in which to pursue his calling. Had it not been for the safeguards then embodied in the Maryland law he would have been master of the situation. The narration of these actual experiences will reveal to you the necessity of power

being lodged somewhere to regulate the movement of physicians from State to State. The restrictions should be so elastic that the liberty of movement by the capable, honorable physician who possesses a good "home record" should not be hampered, but they should likewise be capable of such rigidity that the Washington quack and the Michigan abortionist could be effectually checked from polluting another section. If we are to succeed in our efforts to establish and maintain ourselves upon a higher plane of medical and surgical attainment, as well as professional character, and thereby prove ourselves worthy of the great trust attaching to our work, we must be ever vigilant in our scrutiny of those coming from other States who would cast their lot amongst us.

Recognition of certificates of other States and issue of a license to the holder thereof upon the payment of a money consideration places the entire subject of interstate medical reciprocity upon a purely commercial basis, and effectually destroys every vestige of the original purpose of the profession to elevate the standard by throwing around the entrance to the work the various safeguards to which we have heretofore referred. It sells the right to practice medicine just as a license is sold and issued to a trader. Aside from these features of reciprocity, saturated with commercialism, we find another problem which has been the subject of considerable discussion, has not been solved, and is apparently as remote from settlement as when it first appeared, and that is the uniformity of the standard of requirements by various State boards of examiners. It is argued that fair and just reciprocal relation can only be attained through absolute uniformity of requirements. There was held in January last in Chicago a meeting of representatives of examining boards of Illinois, Wisconsin, Indiana and Michigan, when an organization was effected to be known as "The Confederation of Members of Reciprocating State Medical Examining and Licensing Boards," and from the proceedings kindly sent me by the secretary I will briefly epitomize its views and purposes.

1. There will be individual reciprocating boards.

2. Care will be taken relative to the standards in reciprocity between States; should raise the standard of medical requirements; should also have a beneficial upward tendency, as far as college courses are concerned, from the fact that it would be necessary for a college to adopt in its curriculum the requirements of those States having the highest requirements, otherwise its students or graduates would be at a disadvantage after graduation, and would not be able to take advantage of the reciprocity regulations in some of the better States. A college must be successful upon the quality of its diploma and its value as a qualification for State license..

3. The boards entering into reciprocity will not, as has been done by the American College Association, fix a standard in years, as "a four years' course of six months in each year," but will set the course in hours, itemizing each subject and laboratory course, as has been done by the Michigan Board in its standard for the recognition of colleges. In other words, in the recognition of stand-

ards the fact will be required as well as the *form*. Therefore, reciprocity will certainly promote uniformity at medical colleges. Without reciprocity, and under the present State regulations relative to registration, the competitive idea is not present, especially in those States requiring an examination for license, from the fact that a graduate from any so-called reputable medical college can take the examination, and, if successful in obtaining his license, he has nothing further to look to, his qualifications being simply local and of no value outside of the State. If, on the other hand, his qualifications obtained through an examination before the State board, also, in addition to conferring upon him the right to practice in such State, gave him the privilege of registering in other States, the State board granting this privilege would require a higher and more uniform standing from its applicants in order to be able to exchange its certificate with those States having the highest standard.

Into what mazes the advocates of reciprocity would lead us! However desirable may be this basis for the establishment of interstate reciprocity, it appears to be wholly impracticable. It has been discussed *pro* and *con* in the meetings of the American Medical Association. Medical journals have teemed with communications, and as yet they have failed to so impress the profession as to enable us to see the light. The *Bulletin of the American Academy of Medicine* has presented its many complexities, and is now, through its energetic and versatile editor, endeavoring to secure ratings from members of various boards of examiners upon answers that have been made to questions propounded in recent examinations. Selection has been made of questions that have been used, and, with the answers thereto, they have been forwarded to examiners in a number of States, requesting that they be rated, as if the issue of a license depended thereon. Upon the ratings thus returned the originator of the project hopes to be able to make deductions as to the practicability of establishing uniformity of requirement and qualification as a basis of interstate medical licensure.

In connection therewith it is interesting to note some observations upon this subject in the February (1902) copy of the *Bulletin*: "If we seek reciprocity, we must seek to secure an agreement between the various boards for each to accept, without question, the license issued by each other. Unless the laws of two or more States can be worded to convey precisely the same conditions as to preliminary education, which would require the school systems to be similar, and have the same conditions for medical education, which can more readily be stated, and then prescribe precisely similar State examinations, this reciprocity cannot be carried on in the same way that eagles are exchanged for sovereigns, but there must be a large coefficient for the personal factor in the question and a general averaging of qualifications. Thus Pennsylvania will doubt if New Jersey conducts as severe an examination; Ohio will call attention to the Pennsylvania law that a common-school education is all that is required, disregarding the interpretation of the Medical Council that a common-school education is the completion

of the curriculum of the public schools or a high-school course, while New York will say to Ohio, your school courses are so many counts less in value than ours. Neither board will at last be willing to permit the board of another State to decide for it."

Does it not all resolve itself, my brethren, into the conclusion that the simple plan prevailing in Maryland is worthy of imitation by those who would appear as more advanced, with a board appointed by the Faculty, free from political influence, and thus far, we hope, from any suggestion save that of honesty and moderate capability, to examine applicants for license to register as physician and surgeon? If a physician from another State expresses a desire to locate in Maryland, he must state under oath his past residence, place and time of practice. These statements are investigated, and if it is found that, at his home, he was possessed, in the language of the law, of "good moral and professional standing," he is then invited to meet the Board or its representatives, when he is subjected to a "special examination," the terms and methods of which shall be prescribed by the Board of Medical Examiners. Could any plan be broader, more liberal? Could it be fairer to a man who in the course of an active practice has forgotten non-essentials, but is enriched with knowledge that comes from experience? If he stands well at the old home, his honor will be priceless in giving him standing and reputation in the new. Maryland has been under a law regulating medical practice since 1892. In that time I do not know of a worthy individual who purposed coming into Maryland to have been subjected to a single hardship. And, on the other hand, of the 120 who have been granted special examination, only one has been found to have been an unworthy recipient. I rather think this subject has been regarded with undue concern. Zealous advocates have magnified it into an importance of which it is unworthy. We have found how necessary it is to keep up the bars. We know how easily they can be let down for the capable and meritorious.

Let us rather consider how best to advance and strengthen our profession as a factor in the body politic, and to attain yet greater skill in the diagnosis and treatment of disease; how best to revive and make part of our life the characteristics that were so distinctive in the personality of the "old-school doctors," the founders of this Faculty—free from the commercialism of the present; how we can broaden our humanity and place our name with that of him of whom the angel wrote "as one that loves his fellow-man." In the future only can these aspirations be realized. The past of the Faculty inspires us. We rejoice in its prosperity and growing power. In its expanding future let us all participate, contributing of our means and talents as we possess them, impressing it with our own personality as it shall have been molded by lofty aspiration and unselfish dedication to the consummation of its great work. Not only will the Faculty thus grow and strengthen, so that the potentiality of the profession will be felt throughout the commonwealth, but the influence therefrom will touch us with that nobility which comes from contact with the great and good.

THE TUBERCULIN TEST AS A POSSIBLE AID IN THE DIAGNOSIS OF ADDISON'S DIS- EASE, WITH REPORT OF A CASE.

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J. K., thirty-nine years old, a Hungarian, married, was admitted to the medical wards of the Johns Hopkins Hospital for service of Dr. Osler on June 29, 1897.

The family history is negative; no history of any hereditary disease elicited. All his people live in Hungary.

Previous History.—He has always enjoyed exceptionally good health. When nineteen years of age he had the smallpox. He has lived in the United States about two years, and by occupation was a laborer. Used alcohol in moderation. No history of syphilis or its secondary manifestations. No history of malaria.

Present Illness.—The patient is not sure as to the time of the onset of his present illness, but thinks that it began about ten months ago. The onset was very gradual, and the most striking symptom first noted was a progressive loss of strength. This has been so marked for last three or four months that the patient has been unable to do the lightest work. He has lost flesh quite rapidly, one year ago weighing 172 pounds, while at present he weighs but 116. He has been exposed to many hardships on account of his inability to work, and he has been frequently obliged to sleep out of doors. For the last three weeks he has had almost constant abdominal pain, which is diffuse, but especially marked to the left of the umbilicus. Paroxysmal increase of pain is noticeable. He has had several attacks of nausea and vomiting during this time, but this has not been a marked symptom. A general muscular soreness which amounts to acute pain at times, especially in calves of legs, has been a prominent symptom. He also describes peculiar feelings of sudden heat over the entire body, followed by chilly sensations. No history of a true rigor. The patient is extremely depressed mentally, and in constantly complaining of his ill luck since his arrival in America. No history of any delirium. About six months ago he first noticed that his skin was becoming very dark. He does not state where the pigmentation first appeared. He has had a slight morning cough for the last three months, with expectoration of almost black sputum. No history of hemoptysis. His appetite has been good throughout. At no time has there been diarrhea. Bowels regular.

Physical Examination.—Fairly well developed man. A general emaciation, especially noticeable about legs and arms. He looks sick and depressed. Sensorium clear. Lips and tongue and conjunctivae decidedly blanched. Tongue a trifle coated, no tremor. The most striking feature is the deep dull brownish tint of the

patient's skin in general. There are apparently no areas where normal skin is seen. About the forehead the bronzed appearance is especially developed, and the skin has a dull metallic luster. The unexposed parts of the body show the deepest pigmentation. The genitalia are of a deep brownish-black color; also the nipples. The axillae show this increased pigmentation, and a large area in the right flank is seen where the patient says he applied a mustard plaster. On the soles of the feet and palmar surfaces of hands discrete brown macules are seen varying in size from 1 mm. to 1 cm. A few scars on the body show an increase of pigment. The color of skin in general resembles somewhat that of a Malay. The hair of head and that about the genitalia has a peculiar brownish-gray color, is dry and without luster. Examination of the mouth and throat failed to show any pigmentation, but a small area of pigmentation is seen on sclera of right eye just below the corneal margin.

Chest expansion fair and equal. Examination of lungs negative. Heart impulse in fourth space 3 cm. inside left nipple, sounds clear. Liver dullness normal; edge of organ not palpable. Spleen not palpable, and its area of dullness not increased. Abdomen is flattened throughout, and is tender over its lower quadrants. This is especially noticeable to the left of the umbilicus, where the patient complains of acute pain on superficial palpation. The left rectus muscle is held quite tense.

Kidneys not palpable, nor is there any great tenderness elicited when palpating in the renal area. The examination of the lower extremities shows that the pigmentation is more marked in general than about the arms or chest. The general muscular strength is even more reduced than in the arms; the flexor muscles of leg are especially weak, and the patient is unable to flex the foot when only slight resistance is exerted. Practically the muscles of both lower extremities are sensitive to deeper palpation, and the patient cries out when pressure is made on the calf muscles, especially when pressure is exerted on the tibial nerves. The nerve itself is not thickened. No true muscular atrophy is made out. No fibrillary tremor noted. The patellar reflex is slightly exaggerated, and also the plantar reflex.

Blood Examination.—Two million eight hundred and fifty-six thousand erythrocytes, 5000 leucocytes, and 38 per cent. of hemoglobin. The fresh specimen showed a moderate poikilocytosis and marked pallor of corpuscles. No pigmented leucocytes were found, although these were carefully and frequently looked for.

Sputum scanty in amount and dark in color. Microscopically it consisted of leucocytes and a variety of large epithelial cells, many of these containing fine brown pigment granules. No tubercle bacilli, although the sputum was examined frequently during the patient's stay in the hospital.

Urine was repeatedly examined. It was of a dark amber color. Neither albumen, sugar or the presence of casts detected at any time. No diazo reaction.

On July 6 he was put on the dry extract of suprarenal glands especially prepared by Dr. Abell, taking during the day the equivalent of a gland and a half. Dr. Bardeen took pulse tracings before and after the administration of the extract, but no change in the character of the pulse was noted at any time. The blood tension in general did not seem to be raised. After its use was continued for a few days the patient became very restless, complained of severe headache, and on one occasion he was slightly delirious for a few hours. The extract was discontinued, and these symptoms abated. There is no note as to how long this patient was given the extract, but it always seemed to cause an increase in the general nervous irritability, and had to be discontinued after a few days' use. For the first eighteen days there was fever, the average daily temperature being about 101 degrees, with a maximum rise to 102.3. The temperature, as a rule, was remittent. Excepting for the febrile period following the use of tuberculin, the temperature was practically normal from the eighteenth day after admission until the patient's discharge, a period of forty-six days.

TUBERCULIN REACTION.

Although the patient's temperature has been taken every four hours since his admission, it was thought advisable to keep a two-hour chart for at least forty-eight hours preceding the use of tuberculin.

August 9.—The two-hour chart shows the temperature has been normal during last forty-eight hours. Pulse has ranged between 76 and 96. Respirations between 22 and 24 to a minute. General condition good.

At 10 P. M. this evening he was given ten minims of a one-half per cent. solution of tuberculin obtained from Dr. Trudeau's laboratory. Six hours after injection the temperature rose one degree; eight hours after injection temperature was 101.5 degrees; ten hours after injection, 104.7 degrees, and the pulse was 136, of small volume and slightly irregular. There was a marked change in the patient's appearance now. He looked ill, the face was flushed, the eye injected, and there was lachrymation. He grew restless and complained of severe headache. The muscular pains became more pronounced. There was no nausea, vomiting or diarrhea.

August 10.—The temperature remained between 104 and 104.5 degrees throughout the day, but at 8 P. M. was 102 degrees. There was a marked local reaction about the point of injection, a deep erythematous blush, with considerable swelling, involving whole left arm to a point just below elbow. There was pain on slightest attempt at moving the extremity. The leucocytes were now found to be 7500, and as the temperature was falling steadily, the possibility of an infection was almost excluded.

August 11.—General condition much improved. The arm still shows the local reaction. Leucocytes 600; the temperature remains about 102 degrees. The temperature reached normal

about fifty-three hours after the first rise following the injection. The local reaction has almost disappeared.

From August 12 until the patient's discharge on October 4 the temperature remained practically normal. It is remarkable to note the general improvement during this period. On August 30 his weight was 133½ pounds; on October 4, 154½ pounds. He became more cheerful, and was up and about most of the time during his last few weeks in the hospital. The abdominal pain was still noted on day of discharge. Lips and mucous membranes had a good color. No change appeared in the distribution or intensity of pigmentation. The blood on the day he left the hospital showed hemoglobin, 95 per cent.; erythrocytes, 4,900,000; leucocytes, 4000.

The diagnosis of Addison's disease is not always easy, as there are a number of other conditions which may be associated with marked pigmentation of the skin, and when combined with asthenia may closely simulate the symptom complex of this disease. Osler mentions the following conditions which may be accompanied by marked pigmentation of the skin:

Abdominal growths may be associated with marked pigmentation, and not infrequently other symptoms suggestive of Addison's disease; tubercular peritonitis; pregnancy, in which the discoloration is, however, usually limited to the face (*masque de femmes encientes*); uterine disease; hepatic disease, especially in diabetic cirrhosis; the vagabond's discoloration, caused by dirt and lice, may reach such a grade as to be mistaken for Addison's disease; occasionally the pigmentation of melanotic cancer.

Drummond has called attention to cases of exophthalmic goitre with marked pigmentation.

Neusser would add to this seemingly complete list a special form of pellagra which very closely simulates Addison's disease, and as it is not rare in Hungary, it is worth mentioning here. Tuberculosis, it would seem, is very rare in this last-named disease. In five hundred cases Neußer found only one in which a tubercular lesion seemed to exist. It has not been described in this country. That the pigmentation may be entirely wanting is also clearly recognized. Neußer says: "The bronzing of the skin is undoubtedly a symptom of eminent diagnostic value, just as the eruption of scarlet fever is for the diagnosis of that disease. This bronzing cannot, however, be called a constant accompaniment of Addison's disease."

Lewin found it absent in 28 per cent. of cases. The distribution of the pigmentation may be atypical, as in the case reported by Leech and one by Herm-Trebitsch.

Of course, the presence of a reaction after the use of tuberculin could only be of value provided the majority of cases of Addison's disease are associated with a tubercular lesion. Upon that point most clinicians are agreed. Lewin found in his analysis of 285 cases of Addison's disease 211 were associated with tuberculosis of the suprarenal glands.

In speaking of tuberculin in this paper I only refer to Koch's original product, as the so-called "new tuberculin" does not seem to be so reliable as a test, and its use is connected with certain dangers.

The use of tuberculin is a safe and valuable aid in the diagnosis of tubercular processes in man, and a well-defined reaction should occur in about 80 per cent. of cases of Addison's disease.

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THE BLOOD IN CERTAIN CUTANEOUS, NERVOUS AND MISCELLANEOUS DISEASES, WITH REMARKS UPON THE ORIGIN AND SIGNIFICANCE OF THE EOSINOPHILES.

Ry Thomas R. Brown, M.D.

MUCH work has been done upon the functions, characteristics and the changes of the various constituents of the blood, and yet many of the most interesting questions in hematology remain still unanswered. The object of this slight communication is to report the blood findings in certain nervous and cutaneous diseases, together with isolated observations of the blood in other conditions, and from the consideration of these, and a large mass of observations along similar lines, made by other observers, to consider the question of the origin of the white-blood corpuscles, especially of that form to which most of our attention has been devoted in this work—the eosinophiles.

The percentage usually given of the different form varies somewhat, but from a series of fifty cases carefully examined by us we should give as the usual condition in adults 6500 leucocytes per c. mm. of blood, of which 74 per cent. should be polymorphonuclear neutrophiles, 18 per cent. small and 6 per cent. large mononuclears and transitionals, and 1 to 2 per cent. eosinophiles.

Regarding the cells, to which we shall devote the most of our attention, the eosinophiles, authors differ somewhat as to the exact normal percentage, but the majority of careful observers give between 1 and 4 per cent., while Zappert expresses their prevalence better, perhaps, by giving the number present per c. mm., regarding

50 to 100 as low normal, 100 to 200 as intermediate, 200 to 300 as high normal, and over 300 as pathological.

In other words, according to Zappert, where there is no leucocyte increase, over 4 per cent. of eosinophiles should be considered pathological, while if there is a leucocytosis, lesser percentages are abnormal, depending upon the grade of the increase.

That the eosinophile is an important cell in the animal economy seems extremely probable from a study of comparative animal histology, for Schwartz in 1880 found it in the blood of the frog, triton, emys europeae, dove, rabbit, guinea-pig, and horse, while the studies of Metchnikoff, Sherrington, and others show beyond any reasonable doubt that a certain number of eosinophiles is to be found in the blood of all mammals. That it is a cell of wide distribution, therefore, there can be but little doubt, and this and the bio-chemical characteristics of the cell, the brilliant character of its granules, their large size, great refractibility, and marked affinity for acid stains all have combined to make it a favorite object of study, which, however, has of late been rather dampened by the lack of harmony in the results obtained in many of the investigations.

Of course, besides being found in the blood, eosinophiles are found in various localities as well, and thus we have a local as well as a general eosinophilia. Among the places besides the blood where eosinophiles are to be found in greater or less amount may be mentioned the intestinal mucosa, the skin, various tumors, especially those of a malignant nature, various exudates and excretions, especially those due to the gonococcus, nasal polyps, the secretion in bronchial asthma, and in the bone-marrow, which last habitat is of especial interest in connection with the enormous eosinophilic increase met with in spleno-myelogenous leukemia.

This investigation, although hardly more than a preliminary communication, has for its object the study of the blood in certain nervous diseases, especially the functional neuroses; in certain cutaneous diseases, to which may be added a few isolated observations of the blood in various other conditions; a study in a few cases of various exudates, and from these and the observations of others to try to deduce some probable conclusions regarding the origin and significance of the eosinophilic cells, and their value in diagnosis and prognosis. The *nervous diseases* we have studied have been chorea, in which we have made twelve observations on two cases; angio-neurotic edema, with three observations on three cases, and epilepsy, with three observations on three cases. In chorea the total number of leucocytes was normal in every case, while the eosinophiles varied between 5.2 and 9.5 per cent.—that is, there was always a distinct, and on some occasions a definite increase, in these cells. This is of especial interest in connection with Neusser's extremely interesting views regarding the nature of eosinophiles, that "the supply of eosinophile cells in the blood is

controlled by the sympathetic nervous system, and that eosinophilia is the expression of sympathetic nervous irritation," and we feel that although Neusser has based his theory on a far too limited number of observations, yet it should be given careful attention in all subsequent work on the subject.

In the cases of angio-neurotic edema both leucocyte-count and percentage of eosinophiles were practically normal, while in epilepsy two of the three cases showed a leucocytosis—one slight, the other quite marked, 18,000—while the eosinophiles were present to an extent of 1 per cent. in two of the cases, and 5 per cent. in the third, a case with a leucocytosis of 10,500, and associated with incipient senile dementia.

But little work of importance has been done on the blood in nervous diseases, and especially little where the leucocytes have been studied differentially.

In chorea, Burr and Murphy have separately shown that an anemia is usually present, though Murphy believes that the chorea is the cause, the blood changes the effect. In epilepsy, Krainsky believes the toxicity of the blood is increased; Herter, that it is not. Jenks believes that there is a marked increase of large mononuclears prior to the epileptiform seizures, while both Capps and Burrows have found that a leucocytosis, often of very marked degree, is associated with convulsions, whatever be their cause.

Zappert found, as a rule, a moderate increase of eosinophiles in the organic and functional nervous diseases, while Neusser describes their increase in a variety of nervous disorders, without, however, giving the figures of his differential counts.

Since our original report (*Johns Hopkins Hospital Bulletin*, April, 1897) of the presence of a marked eosinophilia in trichinosis and the diagnostic value of this blood phenomenon, especially in differentiating this disease from other diseases associated with gastro-intestinal or muscular symptoms, numerous observations have been reported, all tending to substantiate this view. We reported three additional cases (*Journal of Experimental Medicine*, 1898, III, No. 3. and *Medical News*, January 7, 1899), all of which showed from 40 to 68 per cent. of eosinophiles in the circulating blood, and trichinae in the muscle, of which a small portion was removed in each case for examination.

Atkinson (*Philadelphia Medical Journal*, June 3, 1899) reports a case, substantiated by muscle examination, in which the marked eosinophilia led to the diagnosis being made, while Blumer and Newman (*American Journal of the Medical Sciences*, January, 1900) report a family outbreak of the disease in which nine persons were affected, and where the symptoms markedly resembled those of typhoid fever. The diagnosis was made from the blood examination, which showed a leucocytosis, with a great increase of the eosinophiles, while trichinae were found in excised portions

of the muscle. Stump (*Philadelphia Medical Journal*, June 17, 1899) reports three cases diagnosed by the marked eosinophilia, and Kerr (*Philadelphia Medical Journal*, August 25, 1900) reports two cases, in one of which the diagnosis was not even suggested until after the blood examination. The leucocytosis in each of Kerr's cases reached 25,000, while the eosinophiles reached the remarkably high percentage of 68.7 and 86.6 per cent.

Gwyn (*Centralblatt für Bakteriologie*, 1899, XXV, p. 746) reported a case diagnosed by the marked eosinophilia, and recently Gordinier (*Medical News*, December 22, 1900) has reported two cases in which the diagnosis was made by this means, in which article he gives a careful review of the literature of the subject.

To these we wish to add a few other interesting observations. In the first place, what was probably our fifth case, a patient who was taken ill at the same time and in the same house as our fourth case with exactly the same symptoms—diarrhea, abdominal pain, followed by musculo-arthritic symptoms, and edema—who, however, refused to allow the excision of a portion of his muscle. His blood, examined eight weeks after the cessation of all acute symptoms, showed a normal number of leucocytes, of which 7.3 per cent. were eosinophiles.

One of the interesting points in connection with our first case is the consideration of the relation of the eosinophiles to the C. L. crystals, but a most careful series of experiments, in which were studied large amounts of blood under many varying editions, has convinced us that these crystals are not the direct crystallization products of the eosinophiles, a view in which Müller, in Vienna, who worked upon this subject at the same time, agrees, his studies being made upon the contents of pemphigus vesicles.

As regards the presence of eosinophilia in diseases due to intestinal parasites, Müller and Rieder, Zappert, Leichstenstern, and others have shown a fairly constant eosinophilia in ancylostomiasis, but usually with no leucocytosis, while Bücklers has demonstrated an eosinophilia of the same nature in several cases where *ascaris lumbricoides*, *botriocephalus latus* or *oxyuris vermicularis* has been found in the intestinal excretions.

The presence of the marked leucocytosis in trichinosis, however, serves to differentiate it from these other conditions.

Of the *skin diseases*, our observations are confined to cases of eczema, pemphigus, epidermolysis bullosa, and Addison's disease, the latter, although, of course, not strictly speaking a skin disease, being included here because of the cutaneous changes met with regularly in its course.

In a case of severe chronic eczema three counts showed a leucocytosis varying from 11,000 to 13,000, with eosinophilia of from 22.6 to 24 per cent. Of three cases of pemphigus, one showed a

leucocytosis of 12,000, with 3 per cent. of eosinophiles; one a leucocytosis of 15,000, with 5 per cent. of eosinophiles in the blood and 13 per cent. in the vesicle fluid, while the third showed a perfectly normal blood-count, both as regards total number of leucocytes and eosinophile, while 56 per cent. of the vesicle cells were eosinophiles. In the second case the vesicle was quite old; in the third case fresh.

In the one case of the rare disease, epidermolysis bullosa, studied, the blood showed 11,000 leucocytes, of which 9.7 per cent. were eosinophiles, thus practically agreeing with the findings in Colombini's case, the only other case of this disease in which the blood was studied.

In two cases of Addison's disease studied, one showed a normal number of leucocytes, with 4.4 per cent. of eosinophiles; the other 12,000 leucocytes, with 8 per cent. of eosinophiles, in the second case there being but 29 per cent. of hemoglobin.

Many observers have noted an eosinophilia in cutaneous diseases, pemphigus, eczema, scleroderma, psoriasis, pellagra, lupus, and urticaria having furnished positive results in this connection, while a local eosinophilia is quite frequent in many cases where there is no general blood increase.

Among the numerous miscellaneous cases in which we have studied the blood we wish here only to mention a few of some interest: One case of bronchial asthma, in which, during an acute attack, the leucocytes rose to 16,000 per c. mm., the eosinophiles to 7 per cent.; one case of sarcoma of the glands of the neck, which shortly terminated fatally, where of a normal number of leucocytes 11 per cent. were eosinophiles; one case of intense renal pain, with marked elimination of uric-acid crystals, probably of gouty origin, where the blood showed 10 per cent. of eosinophiles, and three cases of scarlet fever, terminating favorably, with from 6 to 12 per cent. of eosinophiles. One other case I wish to especially mention, a case of acute acetanilid poisoning, with associated toxic nephritis and gastritis, where the blood showed 30,000 leucocytes per c. mm., with 12 per cent. of eosinophiles, while one week later the leucocytes had dropped to 20,000, the eosinophiles to 2 per cent. This case is extremely interesting from several standpoints, first because it furnishes an apparently pure example of chemical leucocytosis, analogous to the eosinophilia produced by v. Noorden by the administration of large doses of camphor, and, in the second place, because a neutrophilic and eosinophilic leucocytosis were apparently both called forth by the same substance, which is somewhat opposed to Ehrlich's view that the substances positively chemotactic to neutrophils are likely to be negatively chemotactic to eosinophiles, and *vice versa*.

From a consideration of these comparatively few observations, although scattered over a rather large and diversified list of dis-

eases, and from the many observations of others, we may describe an eosinophilia of greater or less extent in a number of conditions, besides that disease in which a marked increase of these cells was originally described—spleno-myelogenous-leukemia:

1st. In bronchial asthma associated with the presence of enormous numbers of eosinophile cells, often mononuclear in character, and of Charcot-Leyden crystals in the bronchial secretions.

2d. In pemphigus, where an increase is frequently met with, while in the vesicles, if fresh, many eosinophiles are to be found, although in old vesicles, or those produced in this disease experimentally by chemical irritants, very few eosinophiles are to be found, as shown by Neusser, Kriebich, and ourself.

3d. In various acute and chronic skin diseases, as shown by numerous observers as mentioned above, and here the extent of the eosinophilia seems to depend largely upon the extent of skin surface involved by the disease. These cases certainly favor Ehrlich's views that substances produced by the destruction and disintegration of the epithelial cells of the skin have a peculiar attraction for the eosinophiles.

4th. In various diseases due to intestinal parasites, the most important being anchylostomiasis, where we have a marked anemia and considerable relative eosinophilia, with no or slight leucocytosis, as a rule, and trichinosis, where the leucocytosis is very marked and the eosinophilia very intense.

5th. The post-febrile eosinophilia following the marked diminution of the eosinophiles usually met with during the course of the fever, the notable exception to this being scarlet fever, where eosinophilia is the rule, especially in the second and third weeks of cases terminating favorably, as shown in our three cases.

6th. In malignant tumors, where the condition is met with, but is by no means common. It is more likely to occur in those cases where cachexia is present.

7th. Compensating eosinophilia seen after extirpation of the spleen.

8th. Drug eosinophile, of which our case of acetanilid eosinophilia is a most interesting example, and in which category the eosinophilia following the administration of camphor and cantharides must be placed.

9th. The moderate eosinophilia sometimes met with in many diseases, as gout, gonorrhea, syphilis, malaria, rheumatism, and, we think, we may add chorea, and probably others of the functional neuroses.

Before discussing the value of these various findings diagnostically and prognostically, let us briefly consider the various theories held regarding the origin and significance of the eosinophiles.

(A) Ehrlich's theory that these cells are derived from pre-existing eosinophiles, often of the mononuclear variety, in the bone-marrow. This undoubtedly explains many cases, and has many arguments in its favor, notably the results of Neusser's and Kriebich's experiments in artificially-produced vesicles in pemphigus,

Schmidt's results in artificially-produced abscesses in asthma, and the various cases of drug eosinophilia mentioned above. Against the theory being universally applicable may be mentioned its difficulty in explaining why mononuclear eosinophiles should so rarely appear in the circulating blood, and how the excessively rapid eosinophile production in asthmatic sputum is possible on this theory.

(B) Müller and Rieder's theory that they are derived from the polymorphonuclear eosinophiles in the circulating blood, this theory having as a fatal argument against it the fact that practically no transitional forms between the two varieties of cells are to be met with in the circulating blood. In many hundreds of careful blood examinations we have met with no absolutely certain transitional form in the circulating blood.

(C) That the eosinophile may have a local origin:

1. From fixed connective tissue cells in the intestines and serous cavities, as held by Kanthack and Hardy, or from plasma cells, as held by Howard from his studies on one case of trichinosis.

2. From the eosinophiles normally in the tissues, highly improbable because mitotic or amitotic division of these cells is so rarely met with in these localities.

3. From the polymorphonuclear neutrophiles in various tissues of the body, as Kischensky has tried to demonstrate in the case of the bronchial mucosa in the case of asthma, and as we have attempted to prove in the case of trichinosis, our arguments being based on the reciprocal relationship existing between neutrophiles and eosinophiles, the original neutrophilic increase being followed by a marked eosinophilic increase and neutrophilic decrease, the presence of a larger proportion of eosinophiles in the veins than in the arteries of the affected portions of muscle, and the presence of forms which we regarded as transitional cells between neutrophiles and eosinophiles in the affected muscle.

Thus we hold from our studies, especially from our studies on trichinosis and acetanilid poisoning, that, while Ehrlich's theory—a chemotactic origin from pre-existing eosinophile bone-marrow cells—probably best explains the increase of these cells in most cases, a local origin of the cells is also probable in certain cases.

These conflicting views regarding the origin and significance of these cells, and the large number of cases in which an increase, although often of but slight amount, has been met with, leaves the question of the value of eosinophilia diagnostically and prognostically in doubt, and yet the studies of others and ourself seem to warrant us in claiming that in certain cases it is of great aid both in diagnosis and prognosis.

Thus its presence seems to differentiate scarlet fever from measles and malaria from typhoid fever in doubtful cases, while we feel that the rapidly increasing number of cases of trichinosis diagnosed by the finding of a marked eosinophile associated with a marked leucocytosis is in itself of great value in differentiating this disease from atypical cases of rheumatism or typhoid fever.

Gout may be differentiated from tuberculosis where the eosinophiles are usually much decreased, while bronchial asthma may be easily distinguished from cardiac or renal asthma by the large number of eosinophiles in blood and sputum in the former condition.

The recent importation of a number of tropical diseases from our new possessions make it extremely important that new means of diagnosis should be introduced, and undoubtedly the eosinophilia with severe anemia, almost constantly met with in ankylostomiasis, is of great aid in diagnosing this at present but rarely met-with disease from pernicious anemia, as in two cases recently so diagnosed at Albany.

As regards prognosis, in a number of diseases the conditions of the eosinophiles furnish us real aid, as in scarlet fever, where a high count during the second and third weeks seems to be a favorable sign; in typhoid fever, where an early reappearance of the eosinophiles (these cells disappearing in the stage of continued fever) points to a favorable prognosis; in the anemias, where the presence of a slight eosinophilia is a good sign; in tuberculosis, where the presence of eosinophile cells in the sputum is regarded by many as favorable prognostically, and in various surgical condition, where, again, the presence of these cells in a condition of moderate increase is a favorable sign.

Thus in considering the results of our small series of investigations, and of the larger mass of figures of other observers, we should, we feel, steer clear of each of the extreme views regarding the functions of the eosinophiles and their diagnostic and prognostic importance.

The view of Neusser is too radical in claiming that even small changes in the percentage and absolute number of the eosinophiles are of immense value in diagnosing and differentiating diseases which otherwise would be overlooked or mistaken, yet the other extreme view, that no real value is obtained from the study of these cells, is quite as incorrect and much less helpful, in that it depresses enthusiasm along this line of study and prevents the collection of a large enough number of cases of various diseases connected with a greater or less degree of eosinophilia from which conclusions of real diagnostic and prognostic value might be obtained.

Let us rather take the broader, middle path; let us admit that although in but few diseases the diagnosis can be obtained from the blood-study alone, yet the percentage and absolute number of these cells present are of real value in the diagnosis and prognosis of a number of diseases, as scarlet fever, ankylostomiasis, trichinosis, malaria, typhoid fever, gout, asthma, and tuberculosis; let us collect as many facts regarding the changes and characteristics of these cells in as many diseases and pathological conditions as possible, so that from a great mass of valuable material may be crystallized out the true status of these cells, their significance, their mode of origin, their life-history, and their value in the diagnosis and prognosis of disease.

Current Literature.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

Assisted by Joseph Hume, M.D.

THORACIC INJURIES INVOLVING THE LUNGS. W. G. Le Boutillier, M.D. *Annals of Surgery*, May, 1902.

The writer reports two cases of injury to the lung, and discusses the literature and treatment of such conditions. Even the best surgeons have been deterred from interfering in such cases from the fear of collapse of the lung from pneumothorax and from infection of the pleura. It has been held that operative non-interference is the best course to pursue, even in the face of the most alarming hemorrhage, but lately, with the recent advance in operative technique, a more aggressive policy has been advocated and pursued in many cases of injury to the thoracic cavity. In thoracic traumata the special symptoms of injury to the lungs are hemoptysis, hemothorax, and subcutaneous emphysema.

Emphysema is rather common in fractures of the ribs, Poland finding it nineteen times in 136 cases, and the writer twenty-six times in eighty-two cases. In the last series all but three cases recovered in which it was noted, and it persisted as long as sixteen days in one case. In thoracic injuries the chief causes of mortality are hemorrhage, collapse of the lung, and arrest of the heart's action by the damming up of effused blood in the pericardium. Later, death may occur from subsequent inflammation, pneumonia, abscess or gangrene of the lung, and empyema. The death-rate from these secondary conditions has been much lowered by early and extensive operation. Recoveries do sometimes occur under expectant treatment after the most alarming conditions produced by hemothorax or pneumothorax, but the death-rate is very high, Nelaton giving it as 50 per cent.

In determining the treatment to be pursued in injuries to the thoracic cavity the most important factors to be considered are the amount of hemorrhage and the degree of collapse of the lung, produced either by early or late hemothorax or pneumothorax. The chance of infection of the wound is also to be carefully weighed.

Tuffier and Miliani have studied a case of sterile hemothorax, and concluded that the proper treatment of such cases is capillary puncture about the fifteenth day, when the pulmonary wound is sufficiently cicatrized to occasion no fear of subsequent hemorrhage, the compression being removed.

The German surgeons, in penetrating wounds of the thorax, advocate rest, closure of the wound, cold applications, and compression by bandages, even when pneumothorax or hemothorax are severe.

Klette advises primary disinfection of the wound, viz., incision of the wound, including the pleura or pericardium if injured, rib

resection if necessary, hemorrhage stopped, and the wound drained and sutured. If hemothorax is present, he removes the blood by aspiration; if a drainage tube is used, the outer end is tied so as to cut off the pleural cavity from the outer air. In widely-opened thorax wounds, with external hemorrhage, there is no doubt that the loss of blood should be arrested. Internal hemorrhage which threatens life should be stopped, if surgically possibly. An extensive pneumothorax should never be allowed to cause death without operative interference.

The writer concludes that operative interference is imperatively called for, first, in distending pneumothorax; second, in large hemothorax, in cases of fractured ribs, contusions of the thorax without external wound, and penetrating wounds of the thorax without regard to the injury or the weapon causing the injury; third, in extensive and progressive subcutaneous empyema after thoracic injury. The operative measures must be determined according to the needs of each case. An extensive bibliography is appended.

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THE SYMPTOMS AND DIAGNOSIS OF CARCINOMA OF THE HEPATIC FLEXURE OF THE COLON. A. E. Maylard, M.D. *Edinburgh Medical Journal*, May 2, 1902.

The writer seeks to answer the question how to differentiate between cases of primary disease of the pylorus and those in which the duodenum is being obstructed secondary to carcinoma of the hepatic flexure of the colon. He thinks that close attention to the history of the case will reveal in a case of carcinoma of the colon definite bowel symptoms which have preceded the gastric symptoms which arise somewhat later. At the best, however, it is difficult to do more than make a suggestive diagnosis of carcinoma of the hepatic flexure of the colon, but the following points materially assist in forming the probable diagnosis:

First. The prominence of digestive derangements in association with other symptoms indicative of colon disease.

Second. The order in which these symptoms arise, first in connection with the bowel, and secondarily in connection with the stomach.

Third. The symptoms associated with attacks of hepatic-flexure obstruction are acuter than those connected with obstruction more distally situated, and do not usually occur until the patient has already shown signs of constitutional disease.

Fourth. Pain is a commoner and more acutely-felt symptom in disease of the cecum, ascending colon, and hepatic flexure than when the growth attacks other segments of the large bowel. Further, the pain is usually felt over the seat of the disease.

Fifth. While the symptoms may suggest disease of the colon up to and including the hepatic flexure, the absence of any tangible growth in the right iliac and lumbar regions will point to implication of the flexure.

DIAGNOSIS AND TREATMENT OF THE VARIOUS FORMS OF GOITRE.
James Berry, M.D. *The Lancet*, May 3, 1902.

Thyroid swellings are divided by the writer into four groups—first, parenchymatous goitre; second, encapsulated tumors (solid and cystic); third, exophthalmic goitre; fourth, malignant disease. The parenchymatous goitre often occurs in the young, bilateral in form, horseshoe in shape, and moves with the larynx on deglutition. These characteristics are sufficient to make it definite, though rarely it may be mistaken for the goitre of Graves' disease, or certain rare forms of inflammation or malignancy; but it is easy to distinguish the latter, as they usually present definite symptoms of their own. Such a goitre is usually soft, but sometimes it may be hard, this hardness being due to an excess of thyroid secretion, which stops up the vesicles and causes the whole tumor to feel dense and solid.

The most important secondary change which parenchymatous goitres undergo is fibrosis, the connective tissue between the vesicles developing at the expense of the latter. Extreme degrees of fibrosis are only met with in the aged, and sometimes in such cases the goitre may become calcified. The most important thyroid swelling, from a surgical point of view, is the thyroid adenomata. These usually begin in the substance of the gland, and are composed of tissue which is very difficult to distinguish from that of the normal gland. They tend to undergo secondary changes, softening, breaking down cyst-formation, and, in fact, the majority of thyroid cysts arise in this fashion. The diagnosis of an adenoma is usually easy, since the swelling, which is unilateral, and not inflammatory nor malignant, must be an encapsulated tumor, solid or cystic. Such a tumor, springing as it usually does from the lower part of one lateral lobe, tends, as it grows, to displace the trachea and larynx to the opposite side, and to itself occupy the middle line of the neck. One point of distinction between large encapsulated tumors lying in the middle line of the neck and parenchymatous goitre may be made by examining the upper border of the swelling. In parenchymatous goitre a notch or depression is found here; in encapsulated tumors it is a smooth, rounded, convex surface.

The difficulties of correct diagnosis are increased when an adenoma exists in an otherwise parenchymatous goitre. Careful examination will do much towards settling the problem, and it is always advisable to give iodine or thyroid extract for a few weeks. The parenchymatous portion of the goitre will, under this treatment, diminish in size, or, at least, so soften that the adenomata, if present, may be better made out.

A well-marked case of Graves' disease presents no difficulties whatsoever, but in the early stages, before exophthalmos has become marked, it may easily be confounded with the parenchymatous form. This, of course, is a serious mistake, if the advisability of an operation is considered. In the absence of exophthalmos or persistently rapid pulse the diagnosis depends more upon the general symptoms than upon the local characteristics of the swelling. The

restlessness and excitability of the patient, the moist skin, diarrhea, and perhaps local areas of pigmentation usually point to Graves' disease, particularly as these are in marked contrast to the dull and lethargic manner of the patient afflicted with parenchymatous goitre. Graves' disease may occasionally be superimposed upon a parenchymatous goitre, and then the tumor will present an asymmetrical shape in contradistinction to the symmetrical enlargement of exophthalmos.

Radical surgical interference in malignant disease of the thyroid is out of the question unless the diagnosis can be made at an early stage before the growth has infiltrated beyond the capsule. This is, however, a difficult thing to do, but the writer lays down the rule "that when in the thyroid gland of a patient over forty years of age a tumor appears which is hard, which steadily and rapidly increases in size, and which is not of an inflammatory injury, the malignancy of such a tumor should be strongly suspected. If, moreover, the surface of the tumor is irregular and bossy, and there appears likewise dysphagia, and a pain in the neck shooting up to the side of the head through the shoulder, then the diagnosis is strongly confirmed."

Malignant disease of the thyroid is nearly always characterized by its hardness, but there is a rare form of sarcoma which is soft, and may be mistaken for an abscess or cyst, but its rapid growth and nodularity will serve to distinguish it.

The principles of treatment in goitre depend entirely upon the diagnosis. If the goitre is of the parenchymatous form, it is well to look for the cause, and, if possible, remove it. It is almost certain that there is a goitre-producing poison in certain waters, and it is well to have a patient change his drinking water and see the effect upon the growth. In the early stages of the same variety iodine and thyroid extract often are of the greatest benefit, and these drugs often have some influence on soft adenomata in the young.

As regards removal of the growth by operation, there are two chief methods—one an extracapsular, which is known as extirpation; and an intracapsular, which is known as enucleation. The writer thinks that extirpation is the proper operation for cases of parenchymatous goitre, if they need surgical treatment, though he thinks the majority are not troublesome enough to demand operative interference. Dyspnea, which does not yield to medical treatment, is the chief symptom, which requires an operation to relieve it. In the rapidly-growing goitre of young boys and girls dyspnea is apt to develop very rapidly, and often menaces life. It is also dangerous in adults who have a deep-seated encapsulated tumor lying behind the clavicle or sternum. Such cases are best treated by enucleation. The writer does not believe in surgical interference in Graves' disease, and in malignant disease he has seldom seen operation early enough to do any good. In his last 109 cases only one death followed, due not to the operation, but to a sarcomatous tumor at the root of the lung, over which lay the goitre for which operation was undertaken.

REVIEW IN HYGIENE.

Under the Supervision of Robert Reuling, M.D., Baltimore.

(Continuation of article which appeared in April number of this Journal.)

STUDIES IN RELATION TO MALARIA. George H. F. Nuttall and Arthur E. Shipley. *The Journal of Hygiene*, Vol. I, No. 1.

Abdomen.—The first two segments of the abdomen, which consists of nine segments, bear at their lateral posterior angle a pair of similar bristles to those on the thorax. The third segment, at any rate in younger larvae, carries but one of these feathered hairs. They protrude out from the body for a distance on each side equal to at least double the width of the body in the younger larvae. They undoubtedly act as balancers, but they do not seem to exercise independent movement. Near to the base of these large lateral hairs, and on a line which slopes inward and slightly forward, are on each side of the dorsal surface four small hairs. Nearer to the middle line than the innermost of the four hairs just described, a little posterior and distinctly on the upper surface of the animal, is a small conically-branched hair. On the first and second segment behind the thorax this hair is small and inconspicuous, but on the third, fourth, fifth, sixth and seventh segments they are highly modified, and play a very important part in the life of the larva. We call these five pairs of specialized hairs palmate hairs. The significance of these hairs seems to have been hitherto entirely overlooked.

Each of the hairs has a little, but very distinct, stalk, like the handle of the framework of an umbrella. At its free end this stalk bears a conical bundle of fine hairs placed like the ribs of the umbrella, if one imagines it turned slightly inside out, about one-third of the ribs missing and the remainder somewhat flattened and spindle-shaped in outline. The whole forms a most delicate little cup, and it is by means of these five pairs of palmate hairs which cling on the surface-film that the larva maintains its position close under the surface of the water. This cone is not quite complete, a few of the inner hairs wanting; in fact, the circle wants a segment of about 80 per cent. on its inner edge. The palmate hairs may at times be seen to enclose air-bubbles when the larva is submerged. The hairs on the ventral surface are either simple, unbranched, or they have a short stalk which ends in two or three, sometimes more, straight, simple hairs, diverging at equal angles. One of the latter lies about on a level with the large hair, or its representative; another lies a little internal and anterior to this; a third hair, and this a simple one, lies still more internal.

The eighth abdominal segment is modified in connection with the opening of the respiratory apparatus, but this chiefly affects the dorsal surface. The hairs on the side and under surface do not suffer much change, although the large feathered hairs projecting

backward are absent or modified. The hairs which seem in relation with the stigmatic apparatus are described with that organ.

The ninth segment, at the posterior end of which opens the anus, is modified in shape, being no longer rather flattened and squarish in cross-section, but round, and the whole segment is cylindrical. The surface of this last segment is beset with very minute pointed bristles, all pointed backwards, and giving this portion a shagreen-like appearance. The anal papillae are well supplied with tracheae, and are clear, transparent structures, with considerable powers of retraction. The posterior end of the rectum is liable to a prolapsus, and often extends some distance out of the anus. This is probably the result of pressure, and does not occur in nature except at the moment of evacuation.

Ventrally, the ninth abdominal segment bears a wonderful fan-shaped arrangement of hairs springing from two skeletal pieces of singular structure. The basal apparatus is paired. Each half resembles a quarter of a solid oval. The convex surface lies externally. One of the straight sides looks upwards and the other faces the corresponding surface of its fellow. Inserted along the convex surface of each is a uniform row of nine feathered hairs, which have their origin in a very distinct circular articulation. When the larva is at rest, hanging on to the surface-film, this ventral fan hangs down into the water and presents a graceful appearance.

Respiratory Openings.—On the eighth abdominal segment are situated the external openings of the respiratory system, supported by a somewhat complex skeleton. In *Culex*, as is well known, the larva in this region of the body gives off a long respiratory tube directed downwards. This is much larger and longer than the last segment of the body, and its presence gives the larva the appearance of a Y with unequal limbs. In *Anopheles* there is no such tube, but the two large tracheae open on the surface by two stigmata, which are surrounded and supported by a complex apparatus.

The easiest way to understand the apparatus is perhaps to compare the larva's body to a round stick of soft wood. At one end of this, corresponding with the eighth abdominal segment, we must imagine that a chip has been cut, but remains still attached to the stick, though standing out from it. The posterior surface of the chip, or the lobe which represents it in the *Anopheles*, is held off from the body by a chitinous ring, which forms some two-thirds of a circle. At the sides where this ring is most prominent it forms a curved, flattened plate, with prominent teeth projecting a little outwards and backwards. Of these teeth there are seven large, stout and dark, whilst between these is a row of smaller teeth. These all overhang and guard the space between the chip or the lobe and the body, and hold up and keep the lobe standing out from the surface of the body. The two toothed lateral arches are joined together by a third chitinous bar which runs through the lobe, and is continued along the base of the arches to their ventral end, where it splits into a small fork. The recess, which is overhung by the lobe and protected laterally by these toothed plates, is not

the respiratory depression. That is on the dorsal anterior surface of the lobe. Here in the middle is a small squarish space bounded laterally by two thin incurved chitinous plates, which are rolled in towards one another like a piece of paper bent into half a cylinder. In front of these and between them and the fan-shaped piece, to be mentioned in a moment, are two minute triangular flaps. The anterior boundary of the square area is formed by an outstanding chitinous plate, fan-shaped and stalked, and the stalk runs downwards to the middle line of a curiously chequered plate, which forms the floor of the area. Posteriorly the lateral curved-in plates bend in towards one another and unite in a median posterior plate. The stigmata lie in the anterior lateral corners of this area, closely tucked into the corners and overshadowed by the median fan-shaped plate. They are circular in outline, with a well-marked thick rim. When breathing the animal lies hanging on to the surface-film by means of its five pairs of palmate hairs; the edges of the respiratory organ pierce the film, and the air is in contact with the squarish area, and can enter and leave the trachea. If anything frightens the larva, the side pieces and the triangular flaps are laid back, and the fan-shaped piece folds suddenly back, the connection with surface-film is broken, and the animal darts suddenly below. At times one can notice the larva twist itself in a loop and begin cleaning and clearing this complex respiratory apparatus with its mouth organs. The larva invariably moves tail forward, and the hairs on that part of the body undoubtedly act as buffers.

Color of Larva.—The general color of the younger larvae as seen by the naked eye is black; seen with a lens, the head appears of a symmetrically mottled brown, darker where the chitin is thick, lighter where thin. From behind the head until about the last two segments the body appears of a plumbeous-black hue.

Observations Upon the Growth of Larvae.—The following observations were made in tanks in the laboratory. The tanks were placed near a window where they were exposed to the sunlight several hours of the day. It was found unnecessary to renew the water as frequently during cold as during hot weather. The tanks were covered with gauze to exclude dust and prevent any flies from escaping.

Two larvae which had just emerged from the egg measured 0.9 and 0.95 mm., respectively. One was killed, and the other measured on successive days. On the second day it was 2.4, the fourth 2.8, fifth 4, twelfth 4.3 mm. long. This larva died on the fourteenth day. Average temperature, 23° to 26° C.

Ten young larvae measuring 0.7 to 0.95 mm. were placed in a tank. Two died on the fourth, two on the sixth, one on the tenth day. They measured on the fourth day 1.5 to 2 mm., fifth 1.9 to 2.1, sixth 3, seventh 3.3 to 3.5, ninth 4.2 to 4.5, thirteenth 5.3 to 6.4, fifteenth 6.4 to 7, eighteenth 7 to 7.5 mm., on which day one pupated, the fly issuing two days later. During the following four days the rest likewise pupated. Temperature during first four, 16 to 19° C., afterwards 23 to 26° C.

The larval stage under the conditions stated lasts eighteen to twenty-one days. That the larvae attained their full size in the tanks was evident from comparative measurements made upon larvae caught in the open, which soon afterwards pupated.

Habitat of Larva.—Larvae of *anopheles maculipennis* and *anopheles bifurcatus* are to be found in pools, ditches, backwaters of rivers, canals, and slowly-flowing waters in various parts of Great Britain and Ireland. Exceptionally they are found in water that is impure or brackish. Almost invariably the larvae are found in clear water, and usually such as contains algae or lemna.

The larvae of *anopheles* certainly prefer waters that are not shaded by trees. This has already been noted by Meinert. It is also exceptional to find them in water contained in small receptacles (troughs), fountain basins and barrels, such as frequently contain the larvae of *culex*. They were found only nine times with *culex* larvae, which do not seem to find sufficient food or suitable food in the clear water favored by *anopheles*. Grassi has also observed this in Italy. Lazear found *anopheles punctipennis* breeding in a stone quarry near Baltimore.

The Pupa.—The larva about to turn into a pupa comes to rest, the thoracic region becomes swollen, and the pupa gradually issues through a dorsal slit in the larval cuticle, which is ultimately thrown off with all its exterior chitinous appendages as well as those parts which are superfluous.

During the last stadium the various pupal organs are being formed. When the larva gives rise to the pupa the head and thorax are already in their "sac," the respiratory trumpets are there, the tail, fins, mouth parts, and limbs are enclosed in their sheaths, the former showing no relation to the mouth parts of the larva.

The pupa is a tadpole-looking object. The comparison would be more correct if we imagine the tadpole has its tail flattened in a horizontal plane and folded under the body. The whole of the head and thorax is enveloped in a thin and semi-transparent membrane, within which the various appendages can be seen coiled up in a symmetrical manner. The head is folded down upon the breast. The most conspicuous organs of the body are the eyes. Just anterior and above the eye the antennae emerge from the head and are folded backward across the origin of the three pair of limbs. They then lie parallel and between the posterior pair of legs and the anterior edge of the wings. The mouth parts are very long, and are coiled symmetrically. The maxillary palps do not reach so far forward as the base of the anterior pair of legs, but their great length is provided for by the palps being sharply bent back and their curving forward again in a somewhat S-shaped manner.

As the legs are too long for the case, they bend upwards. The sac extends ventrally as far as the division between the second and third thoracic segments, and hides the anterior abdominal segments. The breathing trumpets have their origin from two very stout and conspicuous tracheae which run backward and inward

parallel with the base of the wing. The pupa, until about the time when it gives rise to the fly, floats quietly at the surface, breathing through its respiratory trumpets. The trumpets slightly indent the film, over which at times the dorsal surface of the pupa may protrude. When disturbed the pupa shows great activity and apparently purpose in its movements. The effectiveness of the tail as a swimming organ is increased by the broad flaps with which it terminates. The pupal stage lasts from three to four days. Two actually gave rise to flies on the second day. Adding the time required for pupal development to the time spent in the larval stage, the insect requires about twenty to twenty-five days for its development from the time it issues from the egg to the issuing of the fly from the pupal covering.

(To be continued.)

REVIEW IN PEDIATRICS.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

CONGENITAL SPASTIC DIPLEGIA (LITTLE'S DISEASE) IN TWINS, WITH AUTOPSIES. Rolly. *Deutsche Zeitschr. f. Nervenheilk.*, Bd. XX.

Twin sisters, aged seventeen days, were taken into the author's hospital. The father was syphilitic; the mother had given birth to fourteen children. The first of the twins was born spontaneously; the second with instruments, and was greatly asphyxiated. Both children showed the typical picture of a congenital spastic diplegia. Both cases came to autopsy. Macroscopically, the findings in both cases were unimportant. The microscopical study of the central nervous system showed in both cases an enormous overgrowth of the neuroglia and the blood-vessels. There are only five cases in literature of such sclerotic changes in the brain in cases of congenital diplegia without paralysis. In three cases porencephalus was observed, and in one case hydrocephalus externus and internus. Of etiological interest is the probable inherited syphilis. Great stress is placed by Little on the difficult labor and asphyxia, which were present in only one of these children, and consequently could have played no part in the disease of the other.

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BUTTERMILK AS INFANT FOOD. Salge and Heubner. *Therapie der Gegenwart*, October, 1901.

The authors report that after extensive tests their experience has confirmed the assertions of the Dutch physicians in regard to the way in which healthy and sick infants thrive on buttermilk. It must be less than twenty-five hours old, made from sour cream, mixed with sugar and flour, and brought to a boil three times. It

represents 714 calories to the liter. The stools are very fine, but scanty. Slage found it especially beneficial as the first food after dyspepsia and acute intestinal disturbances, in atrophy, and for supplementing nursing.

* * *

CHEMISTRY OF THE STOMACH IN CHILDREN. Dr. Louis Fischer.
Trans. N. Y. Acad. of Med., Pediatrics, April, 1902.

Dr. Louis Fischer read a paper on this subject. Some of the examinations were made upon the gastric contents, obtained by siphonage with a No. 6 or 10 Nelaton catheter two or three hours after feeding, while other examinations were made upon the vomited matter. The chemical examination consisted in testing the filtered chyle for hydrochloric acid, lactic acid, propeptone, peptone, and rennet. A series of ten breast-fed infants constituted a series. In five of these children the coagulum of milk was very fine, but in the other five, who were children suffering from rachitis, syphilis and like disorders, the coagulum was coarse. Hydrochloric acid was present in all but two of these. Five bottle-fed children were also made the subject of examination. In them the vomited matter ejected two or three hours after feeding was usually thick, lumpy and acid. Hydrochloric acid was absent. The acidity was usually due to lactic acid, but occasionally to acetic or butyric acid. There was also but little propeptone and peptone. One fact that he had noted which might prove of some practical value was that while both mild and severe cases of diphtheria showed an absence of hydrochloric acid in the stomach contents during the height of the disease, this acid returned during convalescence. It was also interesting to note that in one case of malignant diphtheria the hydrochloric acid returned forty-eight hours after the administration of antitoxin. His examination showed that there was a constant antagonism between the lactic and hydrochloric acids, the former being normally present at the commencement of digestion, and the latter taking its place towards the completion of the digestive process.

* * *

THE MALNUTRITION OF TUBERCULOSIS. Floyd M. Crandall.
Archives of Pediatrics, January, 1902.

Crandall concludes his article as follows:

1. Wasting, anemia, and other evidences of malnutrition are constant accompaniments of tuberculosis in children.
2. These symptoms may occur in infants long before local disease can be detected, and occasionally no local signs whatever are manifest before death.
3. In infants, tuberculosis shows a special tendency to be disseminated or to conceal itself in the deep tissues, as the lymph nodes. The disease may then run a course identical with simple marasmus.

4. In some cases a period of anemia and wasting is followed by a stage of irregular fever, after which local lesions appear, usually in the lungs.

5. In other cases tuberculosis in children begins with well-marked local manifestations, particularly pneumonia. In these, evidences of malnutrition appear promptly, and are usually progressive. The anemia of tuberculosis, whether it appears before or after the occurrence of other symptoms, is a usually simple anemia, and presents nothing characteristic.

6. A diagnosis of tuberculosis cannot be made alone from the character of the anemia or the malnutrition. Persistent and increasing malnutrition in a child without discoverable cause is always suggestive of tuberculosis.

Anemia in adolescents should receive prompt and active attention, for it vastly increases the danger of tubercular invasion, which is particularly common at that period of life.

* * *

SPINDLE-CELL SARCOMA OF THE THORAX IN A CHILD. Louis Fischer. *Archives of Pediatrics*, May, 1902.

The author reports the following rather interesting case:

G. L., male child, about eight years, was raised on sterilized milk until the end of his second year. At the age of six months a large glandular swelling commenced behind the right ear, which necessitated an incision. At the age of two years had whooping-cough, and later had measles and scarlet fever. The family history is good. There is no history of syphilis, rheumatism, gout, tuberculosis, or anything of a malignant nature in the family, excepting that the grandfather had a sarcomatous tumor, which ended fatally. On examination the patient presented a number of tumors on the front of the thorax, which felt quite hard on palpation. The size of the growth as seen externally was about 15 cm. in length and about 6 cm. in circumference. There is marked dullness on percussion extending over most of the left side. The tumor is surrounded by a network of veins, intensely engorged with blood. As far as could be seen and palpated, the growth occupied that region of the thorax usually occupied by the heart. The heart had been pushed to the right side, and occupied the right axilla. The apex-beat is felt about two finger-breadths below and to the right of the *right* nipple. Pulse 144, feeble, irregular and easily compressible. Respiration is of the Cheyne-Stokes type, about fifty per minute. Temperature from 100° to 101°. There is constant dyspnea—so great that the child sleeps in a sitting posture. There was cyanosis of the lips, fingers and toes. There was a curvature of the spine from left to right, most marked in the dorsal vertebrae. The urine showed no evidence of pus, blood, albumen, or sugar. An exploratory puncture was made, and a few drops of thin, yellowish serum was obtained. An operation was performed, after which the child died. Examination of the tumor showed a spindle-

cell sarcoma in a rather active state of growth. The fluid contained simply red-blood cells, and no pus. Sarcomatous growths in children are rare, this being the only case met by the author in the hospital within the last twenty years.

The interesting points about this case are the displaced heart, the intense dyspnea caused by pressure of the tumor, and the constant cyanosis, due to interference with the return of circulation to the right side of the heart.

* * *

TREATMENT OF PAPILLOMA LARYNGIS IN CHILDREN. Lindt. *Cen. Blatt f. Schweiz. Aertz., Jour. Am. Med. Asso.*, Jan. 15, 1902.

A case of constantly-recurring soft papillomata on the vocal chords of a four-year-old boy who has been hoarse from infancy. After two years of treatment in the hospital, repeated extirpation of the tumors by tracheotomy or laryngo-fissure, intubation, etc., the tendency to the formation of papillomata seemed to have died out, and the boy was dismissed in good health and with only a slight trace of hoarseness in his speech, and no respiratory disturbances nor stridor at any time since. Radical extermination of the papillomata has been only exceptionally successful in such cases, but the fact seems to be established that after a certain length of time, months or years, the tendency to papillomatous proliferation is lost. Lori's catheters render great assistance, as it is possible to remove the tumors with them without injury to the most wildly-struggling child. Lindt derived the greatest benefit from a glass canula with a large opening in the side, which was inserted in the larynx and fastened by threads emerging from the tracheal wound and passing around the neck. The opening was closed during the day, and the child breathed naturally. At night the plug was removed, and he breathed through the opening. The removal of the papillomata is always indicated, as they will interfere with breathing and speaking even if they do not increase in size, and there is always a possibility that they will not recur. When the case comes under treatment just as the tendency is waning, the results of a single operation may prove brilliantly successful. Otherwise extreme patience and perseverance are indispensable.

* * *

REPORT OF ONE HUNDRED CASES, ALL NON-MENINGITIC, EXAMINED FOR KERNIG'S SIGN. Wm. G. Shields. *American Journal of the Medical Sciences*, May, 1902.

The report is to show the result of the examination of 100 non-meningitic cases, both febrile and afebrile, for the presence of Kernig's sign. In every case both legs were examined for the sign in both erect and recumbent postures. In five cases Kernig's sign was present; three showed the sign unilaterally and two bilaterally; one case of uremia, two cases of typhoid fever, and two cases

of hemiplegia. In none of the positive cases was there any joint involvement.

In the same journal Clark reports three cases of meningitis in which Kernig's sign was persistently absent. One of these cases was an acute lepto-meningitis whose bacterial nature was not discovered, and two cases of tubercular meningitis. In all of these Kernig's sign was repeatedly tested, and never present, no difficulty being experienced in extending the leg beyond an angle of 150° . The reports of both Shields and Clark seem to confirm the opinion that Kernig's sign is unreliable as a diagnostic sign of meningitis.

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THE UNILATERAL OCCURRENCE OF KERNIG'S SIGN AS A SYMPTOM OF FOCAL BRAIN DISEASE. Joseph Sailer. *American Journal of the Medical Sciences*, May, 1902.

The author reports two cases in which Kernig's sign was present only on one side, and appeared to bear some reference to a cerebral lesion on the other side of the brain.

Kernig first called attention to this sign in 1883. He described it as a flexion contracture of the legs (and occasionally in the arms) when the thigh is flexed to a right angle upon the trunk. Under these circumstances any attempt to flex the thigh meets with severe resistance as a result of contraction of the hamstring muscles, and it is impossible to extend the leg beyond an angle of 135° , or even in extreme cases beyond a right angle.

The sign is not produced by mechanical irritation of the sciatic nerve, and may occur in certain other conditions, although in all the cases observed by Kernig there was reason to believe that irritation of the membranes existed. The attention of the American profession was directed to this subject by a paper by Herrick (*American Medical Journal*). He found it present in seventeen out of nineteen cases of meningitis, and only twice in 100 other cases. He failed to observe it in cerebral hemorrhage, brain tumor, and other intracranial conditions. Herrick called attention to the fact that the sign is more often absent in tuberculous than in any other form of meningitis. The nature of the mechanism by which Kernig's sign is produced is still obscure. Kernig did not attempt an explanation. Hensch spoke of it as a reflex manifestation. Chauffard explains it as an exaggeration of normal phenomena, due to a hypertonicity of the muscles.

Sailer reports two cases in which the sign was unilateral and appeared to be a symptom of focal encephalitis. The common feature of the cases was a spastic paresis of one side of the body. In both cases this spasticity did not produce any retraction of the hamstring muscles, but gave rise to all the characteristic phenomena of Kernig's sign. The most reasonable explanation of Kernig's sign, according to the author, is to ascribe it to an irritative lesion of the pyramidal tract that diminishes, but does not destroy its functional activity.

Society Reports.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

MEETING OF SECTION ON NEUROLOGY AND PSYCHIATRY HELD MAY 16, 1902.

Dr. Henry M. Hurd in the chair.

Dr. Gichner: "Exhibition of Case."

This case I brought up not for its rarity, but for the peculiarity in its onset and its mode of action. The man came to me after having had grave headaches for about a week, and he was unable to call his wife's name. There were also many other things around the house which he could not name; could not call the names of his boys. He stayed at home, having headache and pain over the left frontal region towards the left side and around the ear. He came to see me, and I recognized it as a case of aphasia. He could not tell who he had been working for, having worked at the same place for three years. He was in this condition for about five weeks, when slowly little things came back to him. I warned him about going back to work. There was no specific history; he has always led an exemplary life; there is no cardiac lesion, no inflammatory lesion, no chance of an embolus. It went along from the 19th of October, when he first noticed the loss of words, particularly of proper names, until November. By the end of November he improved. He is a man of moderate circumstances, and felt the necessity of going back to work. His work consisted in seeing customers for a cap house. On the 9th of December he came home complaining of more headache. He went downstairs to take his supper, and found that the right arm was not as good as usual. Prior to that there had been no weakness of any part—nothing except pure aphasia. He went upstairs, and the next morning was unable to get up. His wife immediately sent for me. Right side of face was paretic, arm flaccid, moved with great difficulty, but the power of the leg was perfectly good. That night there was weakness in the leg, speech was lost absolutely, and within two days the right-sided paralysis was complete. There was no fainting away, no gross manifestation of cerebral disturbance; he could be aroused easily, but was dull and heavy, and could not speak at all. It took from the 9th of December until about the 15th of March for improvement to proceed so far that he began going out. It was a week after getting out of bed before he recollected anything. By degrees he remembered names of streets, the names of his wife and children, etc. He was not able to say his prayers correctly until about two weeks after getting out of bed. No loss of power at all was felt. Co-ordinate movements were absolutely restored. In ordinary conversation he at present gets along fairly well, but will stumble over a word not in common use, and still has a great deal of trouble to write correct sentences. He is not a neurasthenic man, and has no vice at all. His father was strong and healthy.

I am at a loss to put my finger on the lesion in this case. There was aphasia at first, which slowly improved. In six or seven weeks there is a

complete hemiplegia, taking for its completion two days, and complete recovery within four months. As regards the hemiplegic condition, there is still left that aphasic condition to some extent. Not being a neurologist, I would like to have the expression of the Chair.

Dr. Hurd: It is an interesting case open for discussion. Are there any remarks to be made? Will Dr. Preston give us his opinion about this case?

Dr. Preston: I did not hear the first part of the description of this interesting case, but it seems to me that we not infrequently run across those cases of speech disturbances, either associated with distinct paralysis or not, that are very hard to explain from the standpoint of pathological anatomy. In a case like that one would be inclined to think of an embolus which gradually occluded the vessels, first catching the supply of the speech, and afterwards involving the vessels which supply the motor area. I did not hear the doctor say whether the man had any evidence of heart lesion.

Dr. Gichner: Free from it.

Dr. Preston: I have seen a number of cases which have interested me very much—cases in which there was partial or complete aphasia. One case I recollect seeing some years ago. The man had mixed aphasia, both motor and sensory. He walked into the dispensary, and was not able to write, nor to read questions written on a piece of paper, but he could understand what was said to him. I could order him to sit down or get up, and he would obey. The higher senses were more or less intact. He seemed to be a man of fairly good intelligence, and was a sea captain. His wife told me that he was a man of fair education. He was under observation for perhaps two or three years, and in all that time improved not one iota. He used to pretend to read the paper, but he evidently did not understand a word, and he never learned to speak or write. Autopsy showed a small cyst, perhaps as large as a hickory-nut, at the base of the third left frontal convolution, a lesion that probably would have scooped out about a teaspoonful of cortical matter. That condition had lasted for three or four years. Not the slightest paralysis of any muscles had been detected.

Another extremely interesting case without autopsy was the case of an actor who consulted me five or six years ago with this history: He had been connected with an opera company, and had to do nightly stunts. In Connecticut, to his astonishment, while on the stage, without any evidence of disease, he simply could not remember his parts. He was a singer, and had to stop in great confusion. He was left in Connecticut, but was afterwards sent to Baltimore. He had been in Baltimore many times, but when he came to my office I asked him if he knew my office and the name of the street. He said, "I know where that street is, and I could go to your office, but I do not know the name of the street." He did not know the name of any buildings in Baltimore, although he could find his way about. He was unable to call the name of the doctor who had him in charge and with whom he was living. I remember one very amusing incident. I had some suspicion at first of its being a hysterical condition, and I proposed to hypnotize him. He laughed, and said he would not be a very good hypnotic subject, for once, when stranded, without means, he had accompanied a professional hypnotizer for several months, and he knew all the hypnotic tricks. All of that was said in the most intelligent way, and yet when I would ask him the simplest question in which nouns were involved he was entirely unable to answer. Whenever I asked him for the name of his doctor, whom

he had known for a considerable length of time, he would say, "I am very sorry, but I cannot tell his name." So far as I was able to find out, he never recovered. These are two cases in which, so far as any lesion went, outside of the speech center there was absolutely none. In one case which came to autopsy there was a limited localized lesion in the third left frontal convolution. In those cases we find certain very eccentric conditions—disturbance of speech with or without distinct motor paralysis. In the case which Dr. Gichner has reported one might suppose some vascular lesion, which at first had probably caught merely the blood supply of that particular part of the brain, producing a certain amount of slow softening, later either a condition of embolus or gradual distribution of softening.

Dr. Gichner: About a week after the aphasia there was a small boil, not a carbuncle, on the lip that gave him some trouble.

Dr. Preston: I should be inclined to regard it as embolic.

Dr. Hurd: The intention of our secretary was that we should have a symposium upon typhoid fever and the nervous complications of typhoid fever, which was to have been opened by some remarks by Dr. Osler on the meningeal complications. Dr. Osler, I am sorry to say, is not able to be here tonight. The first remarks will be made by Dr. Thomas on "The Paralysis of Typhoid Fever."

Dr. Thomas: Mr. President and Gentlemen—I was speaking to Dr. Osler about the subject of his own paper, and he asked me if I would refer just to one point in this paper, and that was that in the whole number of cases of typhoid fever that have been treated at the Johns Hopkins Hospital, when the analysis was made of 829 cases there was no one that showed any meningitis as a complication of the typhoid. There was a case that had symptoms of meningitis, and in which the meningitis was supposed to have developed, but in which lumbar puncture gave negative results, and in which the patient recovered. I think Dr. Osler regarded that as one of those curious cases of meningeal symptoms which occur with many of the acute fevers. I was really put down for a discussion of the paralyses which occur in relation to typhoid fever, and I do not propose to take up the whole subject, because there is no form of paralysis that does not occur and has not been recorded as having occurred in association with typhoid. An extremely good analysis of the nervous manifestations of typhoid fever has been made by Friedlander in 1901, and there is an enormous amount of literature and references. I thought it would be more profitable to speak of the cases which we have seen ourselves in connection with the Johns Hopkins Hospital. Dr. Osler has in his report in 1895, and in the one in 1900, referred to most of the cases which I shall barely refer to. In the first place, in regard to multiple neuritis: All of the cases of multiple neuritis which have occurred within a week or two. In another case, in the third week onset of Dr. Osler's. Except in one instance, all are cases really of symptoms of neuritis occurring during the course, and consisting largely of pain and slight weakness in certain groups of muscles. We have had but one case develop serious multiple neuritis, which I shall refer to later. The first case had severe weakness, neuralgic pain in arms, great tenderness of the muscles, no arthritis, no sensitiveness of the nerve trunks. Recovery occurred within a week or two. In another case in the third week onset of severe pain in right arm and legs, great tenderness of muscles, and erythema nodosum, recovery following after ten days. In the third case, pain in left

leg, sensitiveness of the nerve trunks, with sensitiveness of the tibialis, followed by rapid recovery. A fourth case, with onset during convalescence, is one of local neuritis, which presented itself not during, but after the paralysis. The patient was a minister from the North. With onset of convalescence of typhoid, had severe pain in the limbs, particularly in the arms, pins and needles in the left foot, swelling and tenderness of left arm. Gradual improvement and recovery took place. In the fifth case, severe fever for five months, pain in right foot during convalescence, foot-drop. There was gradual recovery. In only one was there really persistent paralysis, and that was this last case, which presented itself five months after the paralysis. That is not always the case. There are cases recorded of paralysis of an individual nerve, and we have seen 'outside a number of cases of persistent paralysis after typhoid fever. It is most common, I think probably, in the ulnar nerve and in the external popliteal nerve of the leg. A very interesting patient presented himself in the out-patient department, giving a history which is of interest showing how these cases of paralysis may persist. He was from North Carolina, and came in April of this year, complaining of weakness of the hands following typhoid fever. Had been well and strong up to beginning of typhoid on the 29th of July, 1896. Was in bed for three months. Thinks when he had been sick about two months both arms became powerless. There was no pain. He improved after several weeks, but very slowly. Has regained power in left hand. There was wrist-drop until some time in February or March of following year. Never had wrist-drop of right hand, but the small muscles were much affected. Had loss of sensation of right hand; is doubtful about left. He thinks he improved pretty constantly until about a year ago, and since then is not sure of any improvement. There had been general weakness after typhoid; had no trouble in the feet. Has marked atrophy of the intrinsic muscles of the hand, which is held slightly in claw position. Those of the thumb, however, act better. Fingers not particularly glossy. On electrical stimulation all muscles of the forearm act well. In the left hand intrinsic muscles well developed and strong. Marked atrophy of ulnar side of left arm. In the right hand there is marked dulling to all grades of sensation. At the points of the fingers sharp point is not felt as sharp. In the left hand sensation seems nearly normal. There was no fibrillary tremor observed. There is no trouble at all with the legs. That, I think, is an interesting case showing how long and how permanent this paralysis may be after typhoid fever. I think there can be no doubt that this was a case of neuritis. So much for what I wanted to say about cases in which neuritis was local.

In regard to the cases of multiple neuritis I shall refer to this boy whom we have here. He had a severe fever, three weeks in duration. During convalescence weakness of arms and legs, and finally complete paralysis occurred. There was foot-drop and wrist-drop, with great soreness of muscles. When he came to the dispensary he had to be carried in by his mother; could not sit up, and was nearly completely paralyzed. He was then eight years old; it was in 1893, now nearly nine years ago. We electrified him constantly, and saw him for a year. He improved a great deal, was able to walk, but poorly. I saw him again in 1895. He had completely recovered, except for the fact that he could not dorsally flex his ankles, and was unable to stand on his heels. He tells me he plays with other boys, is active as the rest, but has never quite recovered the use of his legs. He has had a frac-

ture of the right foot. He has a slight toe-drop, more marked on the right side than on the left. He has practically the condition that he had seven years ago in 1895. Ankle reflexes are present, a little active; there is a little contracture. He is particularly interesting simply to show how long and persistent these cases may be.

In Case 7 there was a severe attack of typhoid fever in August, 1892. During convalescence there was progressive loss of power in arms and legs. His arms were restored, but he presented himself in October, 1893, for difficulty in walking and atrophy and weakness of his legs. There had been some improvement.

Case 8, fever of four weeks' duration, in February, 1894. Numbness in legs, gradual impairment of arms, slight in legs in which the paralysis recurred. We saw him in November, 1894, when there had been marked improvement under treatment.

In Case 9, severe attack of typhoid fever, September 26, 1894. There was gradual paralysis of arms and legs, flaccidity of arms, great muscular soreness. Also improved under treatment, but was not completely well. Between 1895 and 1900 there was only one other case of multiple neuritis that Dr. Osler recorded. That is in the second report. The patient was admitted to the hospital with a severe attack of typhoid fever, in the fifth week of which pain developed in right arm, followed by gradual loss of power in arm and hand. In the sixth week loss of power in both legs, without pain. There was gradual improvement, and he seemed to be on a fair way to recovery when he left the hospital. Since then I have been able to find one other case. This patient also presented himself at the dispensary. He gave an extremely interesting history. He was thirty-one years of age, and had been treated in St. Joseph's Hospital for typhoid fever from June 9, 1898, to March 16, 1899. After the typhoid had lasted for four weeks the hands became numb, then painful and weak; then his legs became numb and weak, without pain. He came directly from St. Joseph's to our hospital, and was admitted for observation. At that time he showed a very typical picture of multiple neuritis, double wrist and foot drop. He remained in the hospital only a month, was then discharged, and we lost sight of him. That was in 1899. I looked him up today, and found that he was a butcher by trade. After hobbling around on crutches for a month or two he went back to his trade, and now is completely recovered in regard to his feet, but still has atrophy of one hand. There, again, we have a great amount of recovery, but stopping short of absolute restoration.

Of course, in the diagnosis in all these degenerative cases we have to think both of multiple neuritis and the possibility of spinal-cord disease. One of the chief points of differential diagnosis is often stated to be absolute recovery in cases of multiple neuritis, and partial recovery in cases of anterior poliomyelitis. Our experience has been, where we have been able to trace it, that recovery has been incomplete. The cord may be involved to some extent, but that would lead me too far to discuss. That, I think, is about our experience in the cases of neuritis.

One other type of paralysis that I want to refer to is the cases of hemiplegia—cases involving the brain during typhoid fever. It is a complication which is a good deal more serious than the involvement of the peripheral nerves, and one which, fortunately, is quite rare. In this report of Friedlander's he reports from literature thirty-one cases only of hemiplegia. His

report is not quite complete. But it is a rare complication. The experience of the hospital, that is, in the cases treated in the hospital, has been that we have had two cases of involvement of the brain during typhoid fever. One of those cases died in convulsion before there was time for the paralysis to develop, and the second died two days after involvement of a left-sided paralysis. In both was found traumatic softening. In the first case, a young man of twenty-two, the arteries occluded were the cortical appendages of the middle cerebral artery of the left side, and convulsions were the prominent symptom. Death occurred in a few hours.

In the second case, a man of forty-six, the vessels coming to the right internal capsule were occluded, causing softening of that region. There was Cheyne-Stokes breathing; no convulsions. The attack of typhoid was moderately severe, and paralysis occurred in the course of the third week. Those are the only two accidents that have occurred in the hospital. Two other cases of hemiplegia have occurred. The first was in a child of seven. There had been a protracted attack of typhoid fever. In the tenth week, while fever still persisted, there was a sudden convulsion, hemiplegia, with aphasia. Convulsions were confined to right side. There was complete paralysis of the right side, with loss of speech. The child began to speak again in seven weeks; improved slowly; was still aphasic when seen three months after attack; also showed hemiplegia.

The other case occurred in same year. There was a severe attack of typhoid fever in a man aged twenty-five. At the end of second week weakness in left arm and leg developed, without convulsions. Eight months afterwards paralysis persisted.

Since then we have seen one other case, that of a little girl of eight, who developed, during an attack of typhoid fever, right-sided paralysis of the sphincter, with complete loss of speech. Patient's speech remained absent for eight months; power of speech was gradually regained, and we saw her three years afterwards, when she spoke perfectly well, but still showed hemiplegia.

There have been two cases of brain involvement during typhoid fever in the hospital, three other cases seen afterwards presenting hemiplegia, two of which were in children, which I think is of interest. In this book of Friedlander's in a large proportion of the cases in which the age is recorded it has occurred in childhood.

We have seen one other case which I would like to refer to, although the diagnosis is not perfectly certain. This was a healthy married woman, who had a remarkably good personal history. In the third week of a febrile attack which was considered by her physician to be typhoid fever, but which was very slight, and he had been some time in arriving at a diagnosis, one morning while being dressed by her nurse she had a convulsion of the right side of her body, arm, face, and leg. She remained partially unconscious for several days. When she recovered she was completely paralyzed on the right side and head, complete aphasia, which persisted for about six weeks. She gradually began to regain slight power and to say a few words. Ophthalmoscopic examination was made, but nothing was seen. But after a year it was noticed that she did not see well with right eye, and was absolutely blind in the left eye. Ophthalmoscopic examination showed complete atrophy of the left optic nerve. That has been a year ago. The condition has persisted, with only slight amelioration. The Widal reaction was tested

for, but was never positive, and the question of diagnosis was between a light attack of typhoid fever and protracted attack of influenza. It is interesting in that it is an exact counterpart of the cases that occurred in typhoid, and I still believe that there is a good chance that it was typhoid. In that case possibly there was an embolus. There was right-sided paralysis, with aphasia and optic atrophy. The optic atrophy, I think, could have come from nothing but an embolus from the artery. Although Friedlander gives a pretty good prognosis in hemiplegia in typhoid, our experience has been pretty dismal. We have had two deaths, and four cases in which the hemiplegia has persisted.

There is at present in the hospital an extremely interesting patient. He is a young man, twenty-five years old, admitted May 7th of this year with a history of difficulty of speech and of walking. His family history is unimportant. Personal history: Healthy as a child, measles, mumps, whooping-cough, no diphtheria. Had typhoid fever May to November, 1901. Has often had spots before his eyes. At the end of May, 1900, he had typhoid fever. He has had difficulty in speech, and has had progressive trouble in walking since. There is nothing at all to be seen with regard to cranial nerves. The laryngoscopic examination shows weakness of one of the cords, possibly ankylosis of the larynx. The movements of his hands are strong, but he has marked ataxia. He walks with ataxic gait, also with some spastic element. Reflexes are everywhere exaggerated; has no sensory disturbance, no involvement of the bladder or rectum; has no eye symptoms, no nystagmus. In this case the Widal is negative, but the history of his attack points to typhoid fever, and Dr. Osler thinks he had typhoid fever. The condition now is one of ataxia, with spastic condition, and the involvement of the larynx, but the voice suggests a little multiple sclerosis, though it is not quite typical. The movement is more ataxic than tremor. Multiple sclerosis has occurred frequently after typhoid fever. If it is not multiple sclerosis, we think it must be some degenerative disease in the cord. The diagnosis is not particularly clear in regard to his nervous system, but I think it is an extremely interesting case in relation to these other cases.

Dr. C. B. Farrar: "The Mental Complications of Typhoid Fever."

Almost everyone, I think, believes that of the acute infections typhoid fever is the one which most often gives rise to mental complications. Friedlander, to whom Dr. Thomas has referred, has summed up the evidence which has been collected, and this is his conclusion. Why, in certain cases, persons being attacked with typhoid fever, and perhaps a mild attack, should develop mental complications, and why another with a very much severer attack should come through with no such mental complications, is a question which is not at all clear. Heredity and predisposition have been called in to explain it. Kraepelin attaches very little importance to these. The causal relationship between infectious processes in general and mental diseases was first pointed out by Esquirol something over a hundred years ago. There has been, however, an increase in recognition of the importance of the relationship between the acute febrile processes and mental diseases. The significance of the relation can be illustrated by two facts. In the first place, the occasional occurrence of the pre-febrile delirium which may mask completely the underlying processes, as a result of which many have been sent to hospitals for the insane, where the diagnosis was arrived at some-

times as a result of Widal test, sometimes from post-mortem sections. Post-typhoid predisposition of the nervous system to mental diseases is placed at varying lengths of time—months, or even years, according to Kraepelin. The classification of Kraepelin of the psychoses accompanying typhoid fever are as follows:

Initial Delirium. Pre-Febrile Delirium. Delirium of Onset.	FEBRILE PSYCHOSES. True Febrile Psychoses..75% Other Forms.....25%	ASTHENIC PSYCHOSES. (1) Conceptions, Delirantes Isolees. (2) Conditions of Exhaustion. Collapse Delirium. Melancholia Activa. (3) Depressive Stuporous Conditions. Acute Dementia.
Frequency—Rarest.	Most Frequent.	
Special Etiology Toxines.	Toxines, High Temperature. Hyperemia, Edema. Anemia.	Exhaustion. Malnutrition.
Duration—Shortest.		Longest (except Collapse Delirium.)
Prognosis—Worst (over 50%)	Best.	

According to Kraepelin there are three forms of typhoid psychoses—the initial delirium, which includes the pre-febrile delirium and the delirium of the first few days; the febrile psychoses proper, which include the vast majority of cases. These begin during the first or second week, sometimes with the height of the fever, occasionally with the decline; and lastly, convalescent psychoses, or, as Kraepelin calls them, the asthenic psychoses, which may occur during defervescence or convalescence.

Dieters reported in the *Muenchener medicinische Wochenschrift*, two years ago, cases which illustrated the first of these symptoms falling under the initial delirium. The cases presented the pre-febrile delirium. This occurred in a brother and sister, in whom the psychopathic heredity was very marked. In the first case, that of the brother, an acute maniacal outbreak occurred which lasted for two days. Definite fever developed, followed by the physical symptoms of typhoid. The patient recovered. The sister presented a somewhat different picture. The maniacal outbreak was much more severe. The symptoms persisted for three weeks, when fever developed, with somatic symptoms, and with the development of fever the delirium subsided. The patient died. The earlier the delirium occurs, as a general rule, the more serious the outlook.

For the second group of cases, fever psychoses proper, I have one case to report. It is the case of a man thirty-seven years old, whose family history is that an uncle and two aunts on father's side died insane. At the age of thirty-seven a typical attack of typhoid fever developed. There were no mental symptoms, except as the fever subsided psychoses developed, and could be separated into four stages. At first there was an acute hallucinatory delirium. The hallucinations were mostly of a terrifying character.

She misinterpreted ordinary sense impressions, and gave them all a very distressing meaning. Delusions developed with an increasing degree of disorientation and confusion. Somatic symptoms subsided during this stage. The fever, which had become normal, now showed irregular elevation for five or six weeks, after which it subsided, although the mental symptoms continued. The second stage was a stuporous condition, which lasted for about six weeks longer. During this time the patient lay quietly in bed, and beside the oral hallucinations active optic hallucinations developed, and she saw strange forms of the Deity. The hallucinations occurred mostly in the morning and evening. Disorientation was complete; patient's nurses were not recognized as such. During this period the appetite increased prodigiously, and the patient became unusually active. She gave vent to superfluous energy by dancing up and down, singing, whistling, etc. This third stage was really the hypermaniacal stage which marked the beginning of recovery. The fourth stage was a slight fatigue reaction.

The third group, the convalescent psychoses, include a great variety of forms. Kraepelin has put down three principal classifications. Binswanger gives an illustration of this form in a young girl who had developed an optic hallucination, and as an outgrowth of this hallucination she believed that her brother really was dead. This persisted for nine months after all the other signs of the typhoid process other than exhaustion had disappeared.

There is another point of post-typhoid predisposition. Kraepelin says that in any case of typhoid fever there may persist an irritable weakness of the nervous system for a year or more, and that on this basis, with very slight external cause, a psychosis may develop after every evidence of the typhoid process has disappeared. Such are some of the post-typhoid hysterical conditions. Conditions of mild depression, with vague persecutory delusions and chronic nervous exhaustion, may follow typhoid fever.

Two other interesting conditions have been spoken of in this condition—Kornhof's psychosis and general paresis. First described in 1890, a number of observers have reported cases in direct sequence, but most authorities are against the view that the typhoid is an exciting cause. Most of the Germans take this view, and a number of French authorities have given typhoid an etiological importance in general paresis.

As to the effect of typhoid fever on already existing psychoses: Here, again, is a very difficult question. In a number of conditions the occurrence of typhoid fever has apparently improved the existing mental disease. Such have been periodic mania, certain cases of amnesia, and hysterical psychoses. In such conditions as dementia precox and chronic paranoia no beneficial effect has been observed. Of course, it is impossible to say how many of these cases would have recovered anyway. It is not known how many of them have relapsed years after the typhoid process has disappeared. One point seems to be certain, that the typhoid has not exerted any harmful effect upon pre-existing mental conditions. To sum up, we find that in healthy-minded individuals typhoid fever may or may not produce a psychosis; that in those who have bad heredity, or who, perhaps, have been previously exhausted by chronic disease, or by protracted course of fever, or exhausted from whatever cause, the liability is greater that there may be

an initial delirium, which is of the most serious outlook, but, fortunately, the rarest form and shortest in duration. So-called fever psychosis proper is by far the most common form, and not of a bad outlook. Strumpell concluded that all typhoid psychoses gave a good prognosis. After the typhoid process has entirely subsided the patient is by no means free from danger of mental disease. In certain cases typhoid process has seemed to have a beneficial effect on the psychosis. There is nothing specific in the clinical picture. Exhaustion, anemia, high temperature, intoxication, infection of whatever source, may give rise to practically indistinguishable clinical pictures, and the pathology of the mental symptoms in these conditions is unknown.

Dr. Paton: I should like to say a word about Dr. Farrar's paper this evening. He has given us what I think is a very valuable contribution to the subject of post-typhoid psychoses. I hope before long that Dr. Farrar will have an opportunity of telling us what he knows more at length. There are one or two points that he has not referred to which I should like to call attention to. In the first place, about the prognosis of these cases: In the psychoses following fever there is one point of very great practical importance, and that is the bodily weight. The minute the weight begins to rise rapidly you can give a favorable prognosis in ninety cases out of 100, no matter what the patient's psychological condition is. Even although the patient may be maniacal or profoundly depressed, if the bodily weight begins to rise rapidly you can give a good prognosis. Kraepelin emphasizes the great importance of weighing these patients daily, and he says that in some cases once a day is not sufficient. They should be weighed twice a day. He reports a number of cases where patients have gained eight and ten pounds in two or three days. There is a great opportunity in every medical ward if we only appreciate it. If we only had the patience to study the delirium of the cases of typhoid fever it would be one of the most valuable contributions that could be made to psychiatry, and I hope that somebody will soon undertake this very valuable piece of work. We speak of a characteristic typhoid delirium. The minute the typhoid delirium is mentioned each one of us has a mental picture of what that means. Now, associated with that in a very rough way there are definite changes in the nervous system. If we had the patience to sit down and trace out this psycho-physical parallelism which exists in the case of typhoid delirium, it would give us a starting-point for the study of all the acute psychoses. And it seems to me that we cannot know anything definitely about acute mental disease until we know something more definitely about the delirium of fever. Now, who is going to do this, the alienist or the general practitioner? I think we can answer this question very easily. The alienist must be more of a general practitioner, and the general practitioner must be more of an alienist. A starting-point has been made in Head's very remarkable paper in a recent number of *Brain*, in which he has studied the ordinary deliriums found in every medical ward. Old cases of heart disease, old kidney cases that are passed by as uninteresting, might be very carefully studied for their mental symptoms associated with the bodily condition. Pick of Prague says Head's work is the most valuable contribution that has been made to psychiatry.

Book Reviews.

THE PATHOLOGY AND TREATMENT OF SEXUAL IMPOTENCE. By Victor G. Vecki, M.D. Third edition, revised and enlarged. Philadelphia and London: W. B. Saunders & Co.

The author handles this rather delicate subject in a very satisfactory manner, though he does not abstain from freely expressing his own opinion, often differing greatly from many authorities as to the effects of masturbation, onanism, and pederastia. After a scant description of the anatomy and pathology of the sexual organs, he describes with great minuteness the various forms of impotence. In the diagnosis of impotence he lays great stress upon the history and endoscopic examination of the case. He describes the difference in the pathological appearances of the coliculus seminalis and neighboring parts in spermatorrhea, prostatorrhoea, onanism, and other diseases associated with total or partial impotence.

As regards prognosis, he says it is entirely unfavorable in cases of absence of the penis, of both testicles, of excessively small sexual organs, of excessive hypospadias, and of epispadias. It is more or less favorable in the other kind of organic impotence. In all forms of neurasthenic impotence the prognosis is very varying, whereas in the so-called psychical impotence it is generally favorable. But he states that rational treatment will benefit all cases except those of senile impotence.

As regards treatment, he reiterates the well-known advice as to sleeping on hair mattresses, cold baths in the morning, light meals before retiring, urethral irrigations with hot and cold water, instillations of various solutions, and a hundred and one other things that are more or less common knowledge, and, we can also add, more or less useless. However, he recommends two new methods, which, in his hands, seem to have been of some efficacy. One is a solution of the tincture *ratanhia*, which can be used in solutions of different strengths. One drop of the pure tincture injected into the posterior urethra has the same effect as a cauterization, without any of the objectionable consequences following the latter.

Some of the best results are obtained by the use of Sayre's method of suspension. In Charcot's clinic the suspension treatment was used in many cases, removing in all of them pre-existing disturbances of the sexual feelings and power. It seems also to make a decided improvement in functional disease of the bladder, which so often accompanies *tuberculosis*, and also effects a cure in cases of neurasthenic impotence. In applying suspension the suspending should be accomplished gradually and with great care. The first suspension should not last more than a couple of minutes, but later it can go up to five. They are usually applied every second day.

In psychical impotence Vecki lays great stress upon the importance of hypnotism.

This third edition is quite an improvement upon its predecessors both in matter and appearance. A full biography is contained in the footnotes, which makes it quite a good reference book.

Y.

SYPHILIS—ITS DIAGNOSIS AND TREATMENT. By Wm. S. Gottheil, M.D.
Chicago: C. P. Engelhard & Co. 1901.

This attractive volume of a little over 200 pages is really an expression of the views of its distinguished author on the subject of syphilis, as determined by his personal experience. Though not exhaustive, yet it is full enough for the general practitioner, and is marked by a lucidity and soundness which makes it acceptable even to the younger specialist. He lays stress on the fact that it is only possible in a very small percentage of cases to make a positive diagnosis from an examination of the sore, and insists that one should withhold his conclusions until confirmatory symptoms make their appearance. Yet elsewhere he states that if you admit you cannot make a diagnosis, most of your patients will go to some one who can—suggesting that one must pretend to make a diagnosis for the sake of keeping the patient. Certainly, if this is the practice followed it is very reprehensible.

The chapters on treatment are excellent, and though giving the various methods in vogue, he lays much stress on the mode of treatment which he prefers. He is in the habit of giving hypodermatically 5 to 10 minims of a 10 per cent. suspension of calomel in equal parts of glycerine and water. This is given at intervals of from five to fifteen days. The course of treatment is kept up for from two to three months, allowing a month or so to elapse before another course of the drug is started. His technique consists of cleaning off with green soap and water the post-trochanteric area, then washing it with alcohol or ether, and plunging a long needle deep into the muscles. He keeps a separate needle for each patient, sterilizes it in an alcohol flame, and covers the puncture point with a piece of zinc plaster. Since he has adopted this technique he has observed no abscesses or other untoward effects, save occasionally a slight soreness in that region.

The book is well worth reading, but the illustrations are absolutely useless, conveying no impression whatsoever of the lesions they are designed to illustrate.

J. H.

FIRST AID TO THE INJURED AND SICK. By F. J. Warwick, B.A., M.B. Cantab., Associate of King's College, London; Surgeon-Captain, Volunteer Medical Staff Corps, London Companies, etc.; and A. C. Tunstall, M.D., F.R.C.S. Ed., Surgeon-Captain Commanding the East London Volunteer Brigade Bearer Company; Surgeon to the French Hospital and to the Children's Home Hospital, etc. 16mo volume of 232 pages and nearly 200 illustrations. Cloth, \$1 net. Philadelphia and London: W. B. Saunders & Co. 1901.

This volume of practical information is intended as an aid in rendering immediate temporary assistance to a person suffering from an accident or sudden illness.

The first part is a compend of anatomy and physiology, and adds nothing to the value of the book.

The second part of the book is an excellent guide in emergency procedures, the directions being clear and sufficiently brief, and the illustrations very helpful. It is small enough to be carried on the person, and is a useful book for nurses, railway employes, sportsmen, etc.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, JULY, 1902.

THE CASE OF JANE TOPPAN.

SEVERAL months ago a professional nurse, Jane Toppan, was arrested on a charge of having killed a patient with poison. The grand jury found true bill against her for the murder of three persons. She was suspected of having killed eleven persons. A few days ago at her trial at Barnstable, Mass., she stated to Judge Bixby that she had killed during her professional career no less than thirty-one persons. Miss Toppan was found to be insane, and will spend the rest of her own life, at least, in the Taunton Hospital for the Insane.

She did not give a list of her victims, but no doubt is thrown upon her count of thirty-one. In the summer of 1901 she caused the death of three people at one place. Not all of her victims were sick and under medical advice; several were her too confiding friends. Her long immunity to suspicion is credited to a remarkable skill in the use of morphia. With this familiar drug she seems to have been successful from the first experiment. Success did not in all cases mean death to the defenseless subject. Miss Toppan is a mistress of illusion and a great virtuoso. Sometimes she chose to experience the delights of recovering her victims from profound intoxications. It was wise of her not to confess the names of those who returned alive. Some of them would have been ungrateful, some would have been inordinately puffed up by the story of perilous adventure, and some, perhaps, would claim that of their own free will they went skyrocketing with Miss Toppan.

Her expert knowledge, such as it was, can hardly have included ability to

produce death without symptoms of morphia poisoning, and the physiological effects of morphia are particularly characteristic. Miss Toppan was certainly not very clever in her choice of a poisonous agent. Her expert knowledge was perhaps derived largely from the observation that in America one may bury without delay anybody who is suspected of being dead.

The time between the accomplishment of a homicide and the disposal of the body, the period of hazard to the criminal, is made so comfortable that the legal preliminaries to a funeral might by a little cleverness be arranged before the deed is done. The doctor will without hesitation give a certificate of death upon request of anyone who says that one of his patients is dead, and the authorities will grant a permit to bury without asking the verification of a single statement contained in the certificate. In perhaps a majority of instances the records of death do not contain the name of any individual who either witnessed the death or had certain knowledge that it occurred at the time or in the manner certified. This loose practice may not have encouraged Miss Toppan to indulge her insane passion for destroying people, but it may have helped her to make so large a score.

HOSPITALS AS FUEL.

IN Chicago on the afternoon of June 9 fire broke out in the basement of a sanatorium for the cure of alcoholism and other drug addictions, and the flames, sweeping up an elevator shaft, soon wrecked the building. Thirteen persons perished, and more than twenty other persons were seriously injured. Of seventy patients, only about half made good escapes. The afternoon blaze attracted a crowd of spectators, who witnessed the frenzied efforts of patients to tear away from the windows heavy iron bars and wire screens. The mob in the street is said to have been almost as frantic as those who were struggling for life. One hopes that the sensations of those awful moments may be turned to some profit.

The building was of wood and brick, and was long known as the Hotel Woodruff. It was probably never a safe place for healthy persons to sleep in at night, but it was acquired by a society, called after Luke the physician, who barred the windows with iron, and filled the rooms with sick people, some of whom were strapped to their beds. The materials were then ready, and if the fire had occurred at night the results of the experiment would have satisfied the most sanguine expectations.

The incomplete holocaust may, however, have been sufficiently convincing, since the great crowd of witnesses could not have been present at night except by special arrangement. Those who saw this great horror were

doubtless impressed that benevolent persons, unhampered by law or common sense, may excel both fools and rogues at contriving surprises.

Is a similar disaster possible in Baltimore? Can any official answer?

UNLICENSED HOSPITALS.

This Chicago hospital had no license. Application had been made to the authorities, but there were protests from neighboring property-owners, and no license was issued. This default had, apparently, no influence upon those who needed the special treatment which the hospital professed to afford.

In Baltimore it is said to be unnecessary to apply for any license to house and care for sick people. The number of private sanatoria in the city is large, and is increasing. They are subject to no especial restrictions. Provided the building laws of the city are not violated, any structure may be used as a hospital.

One might design and build a commodious crystal maze, advertise to the public the all-curative power of infinite zig-zag, and fill the rooms with confiding people. It would not be the duty of any official to stay the proceedings.

A careful inspection and truthful report upon the hospitals and sanatoria in Baltimore might disturb the public mind.

A SLIGHT UPON THE MEDICAL MEN.

THE Senate bill to retire Surgeon-General Sternberg with the rank of major-general, after receiving a fine majority in the Senate and an unanimous favorable report of the House committee, was defeated in the House of Representatives through the active opposition of Mr. Cannon of Illinois and Mr. Underwood of Alabama.

Mr. Cannon is chairman of the committee on appropriations, and a vigorous speaker. When he desires to make a particularly strong impression upon the House, Mr. Cannon removes his collar. The stunts without a collar enable Mr. Cannon to subdue a refractory House and to become famous. He defeated the Sternberg bill while wearing a collar, and as he did not dress for the performance, he evidently did not expect to improve his reputation.

Mr. Underwood's claims to admiration are unknown to us, but he is reported to have said in the debate some memorable things which the reporters have forgotten. The friends of the bill should have required both of these distinguished gentlemen to work for the decision. If the medical men of Illinois, Alabama and Maryland had moved as strongly as they should in behalf of the bill, it could not have been beaten by Messrs. Cannon and Underwood wearing only megaphones.

Medical Items.

DR. WM. T. WATSON has been elected professor of hygiene in the Baltimore Medical College.

DR. T. RITCHIE STONE died at his home in Washington on June 1 from angina pectoris, aged forty-five.

THE fifty-seventh death from plague in San Francisco occurred on May 29. This means the fifty-seventh demonstrated case.

DR. JAMES BOSLEY, Commissioner of Health of Baltimore, has prepared and is circulating a pamphlet of instruction concerning the care of infants in hot weather.

THE recent illness of Queen Wilhelmina has been followed by seven or eight cases of typhoid fever in her personal attendants. Castle Leo is, in consequence, being thoroughly overhauled and put into good repair.

THE Board of Health of New York city has made contagious ophthalmia a notifiable disease. This action has been taken in view of the wide prevalence of the disease prevailing among school children.

DR. GRIFFIN W. GOLDSBOROUGH died at Greensboro, Caroline county, on June 14. He had been in active practice since 1838, a period of sixty-four years, and was probably the oldest practitioner in Maryland.

THE new Premier of France is Dr. J. L. E. Combes, who graduated in medicine in 1867, and practiced only eight years. He has been in politics since 1875. He is said to be the smallest man who has attained such political eminence since M. Thiers.

THE Quarter Club, which began in February to collect money for use in the struggle against tuberculosis, has in hand nearly \$3000, and will extend its area of operation to the counties in the hope of materially increasing this amount.

THE high-water mark of suicide in Chicago was reached in May, when fifty suicides were recorded. A correspondent of the *Journal of the A. M. A.* calls attention to the unrestricted sale of poisons and to the indifference of the lawmakers to the increase of crime traceable to unchallenged liberty of buying and selling deadly drugs.

QUEEN WILHELMINA has conferred upon Dr. Rosenstein of Leyden University the rank of Commander of the Order of the Lion of the Netherlands, and has conferred knighthood in the same order upon Drs. Pot, Konwer, and Roessingh. This is done in recognition of their services in the Queen's recent illness.

DR. OTIS R. FREEMAN, who died at Freehold, N. J., on June 8 at the age of ninety-four years, was believed to have been the oldest practicing physician in America. Five days before his death he set a fractured arm. He graduated in medicine in 1843 at Dartmouth, and served in the medical department of the United States Army during the Civil War.

DR. ELIAS C. PRICE, one of the oldest and most prominent homeopathic physicians in Maryland, died at his home in Baltimore on June 16. Dr. Price was born in 1826, graduated in medicine at the University of Maryland in 1848, and was an incorporator of the Southern Homeopathic Medical College and the State Homeopathic Medical Society.

DR. STEPHEN H. KING died in London on June 7 of pneumonia. Dr. King had for several years been engaged in special studies at Johns Hopkins Hospital, and had grown exceedingly popular among his associates. He was a graduate of Harvard Medical School in 1872, and practiced medicine in Massachusetts and Connecticut for nearly twenty years.

AN assistant coroner in New York recently reported some young internes at Bellevue to the superintendent for negligence about calling the coroners to take ante-mortem statements. It is said that the criticisms of the coroner's assistant were so spicy that the internes have since that time used every pretext for calling the coroners to the hospital, and that the coroners are good and tired.

THE vacancy in the chair of surgery in the University of Maryland caused by the resignation of Dr. L. McL. Tiffany has been filled by the election of Dr. Randolph Winslow. Dr. Winslow has been professor of anatomy and a visiting surgeon to the University Hospital for several years. Dr. J. Holmes Smith succeeds Dr. Winslow as professor of anatomy, and Dr. Joseph W. Holland becomes demonstrator of anatomy.

THE Martinique disaster has reduced a good many medical students from that island to a state of destitution in Paris. According to *Progrès Medical* an effort is being made to aid these unfortunate young men. Two committees have been formed—one to secure the remission of their school expenses, and another to make up for them, as far as possible, their allowances for support. The appeal in this matter is specially addressed to medical men.

AMELIA BANGS, a midwife, was convicted in the Criminal Court of Baltimore on June 10 of criminal neglect in failing to report the occurrence of purulent ophthalmia in a newborn babe. Both eyes were lost, but the testimony showed that the child would have been blind in any event, and the woman was therefore recommended to the mercy of the court. Judge Ritchie imposed a fine of \$20 and costs, and gave the midwife a severe lecture.

THE smallpox situation at the end of June is rather more favorable than was anticipated. Baltimore city has furnished no case during the month. Baltimore county has reported one, now in Quarantine Hospital; Dorchester county has had four, Somerset county one, Washington county five, with one death. The outbreaks in Caroline and Allegany have been terminated, neither of those counties reporting a case up to the 24th of the month. There were on that date but six cases known in the State.

ON May 27 a cow calved at the stock-yards a few hours after her arrival by train. On Monday it was thought the cow would die, and she was put by her owner into a cart to be hauled to the Abattoir. A butcher was ready and stepped into the cart with his tools to butcher her. The inspector suddenly appeared and stopped proceedings. The cow was dead of puerperal sepsis. If the inspector had been three minutes later the cow would probably have been safely on her way towards human indigestion. Confiscation was the only recourse to the official. The new law, providing a penalty for this act, was that morning published for the first time.

A HUNDRED years have passed since the system of competitive examinations was established for the choice of internes to the Paris hospitals. The Minister of the Interior who founded the system was a physician. A centennial celebration began on May 24, and lasted three days. A monument was dedicated to the memory of the internes whose lives were lost

in the line of professional duty. The monument bears a scene in relief representing a tracheotomy done on a child. This subject was selected because many internes got fatal infections during these operations. The monument is placed in the inner court of the Hotel Dieu, and thirty-five names of internes who gave up their lives in the service are inscribed upon the pedestal.

THE new plan of organization of the American Medical Association seems to have worked well. The House of Delegates proved to be a very serviceable body and far less unwieldy than the general sessions. To be a member of the House of Delegates is, however, to forego section meetings almost wholly. Dr. Wm. H. Welsh and Dr. Wm. Osler represented Maryland in the House of Delegates. The next meeting of the American Medical Association will be held at New Orleans in May, 1903. Among the interesting things done by the House of Delegates was a resolution offered by Drs. Forshay and McCormack, and adopted with enthusiasm. The resolution expressed the sense of the House of Delegates that "the solicitation of votes for office is not in keeping with the dignity of the medical profession, nor in harmony with the spirit of the Association, and that such solicitation should be taken to be a disqualification for any office in the gift of the Association."

SURGEON-GENERAL STERNBERG has been retired, with the rank of major-general. He has been succeeded by Col. Wm. M. Forwood, who is a native of Maryland. Surgeon-General Forwood is a graduate of the University of Pennsylvania, and was made assistant surgeon in the United States Army in 1861. His career as a soldier during the Civil War was marked by conspicuous bravery. After the battle of Gaines' Mills he made a daring rescue of a fallen officer within the enemy's lines, was taken a prisoner, and escaped. His horse was killed under him at Gettysburg, and at Brandy Station he was shot through the right breast. From 1890 to 1898 he was attending surgeon to the Soldiers' Home in Washington, and was professor of surgical pathology in Georgetown University. During the Spanish-American War he had charge of the military hospitals at Savannah and at Montauk Point. Since 1901 he has been in Washington as assistant to General Sternberg and president of the Army Medical School. He will retire in September, 1902.

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SOME WORK ON A CURATIVE SERUM FOR TYPHOID FEVER.

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Baltimore.

LABORATORY OF THE STATE AND CITY BOARD OF HEALTH.

ALTHOUGH the production of an antitoxin for diphtheria has resulted in a satisfactory clinical remedy for counteracting a disease mainly due to the absorption of a toxin, little, if any, progress has been made towards a remedy which will act favorably in diseases caused by the presence of bacteria themselves in the tissues or circulating blood.

The classical work of Pfeiffer and others has demonstrated that healthy animals can be rendered immune towards such bacteria as the spirillum of Asiatic cholera and the typhoid bacillus. A single portion of the blood serum of immunized animals added to 100 parts of a fluid culture, when injected into the peritoneal cavity of a normal guinea-pig, produces a characteristic reaction. The bacilli clump, and gradually become digested and destroyed. This is a specific reaction, and only occurs towards the organism against which the original animal was immunized.

Although these experiments have been carried on with animals, but little work has been done towards producing serums which will help to destroy the bacteria in human beings who already show signs of infection.

In order to test the effect of a serum of high immunizing power on cases of typhoid fever, we have performed a series of experiments. Before describing these we shall briefly mention the work of Abel and Loeffler,¹ who produced a serum which protected animals against typhoid bacillus in amounts much larger than the usual fatal dose, and which seemed to cure guinea-pigs after they were artificially infected.

They injected subcutaneously fresh fluid cultures of the typhoid bacillus into dogs, using gradually increasing doses. They used a typhoid culture which killed 300-gramme guinea-pigs in doses of 1-50 of a loopful of agar culture, and then found that 0.001 c. c. of

this serum would protect guinea-pigs against 100 times the minimum fatal dose in non-protected control animals. They also proved that 0.5 c. c. of their serum, injected intraperitoneally, would bring about recovery after the animals were sick from artificial typhoid infection. Animals inoculated with double the fatal dose who had been sick for eight hours were thus cured, while control animals died. They also showed that the serum of dogs immunized with one variety of the typhoid bacillus will protect animals who have been inoculated with another variety. This would seem to show that this protective influence extends to the entire species of frank typhoid bacilli.

In order to obtain a serum of the highest immunizing power we used pure virulent cultures of the typhoid bacillus for the purpose of injecting animals. The experience of others had already shown that such cultures cannot be used for subcutaneous injection into horses, since large sloughs often form from their use. We found that hogs will stand the injection of pure untreated cultures of the typhoid bacillus without any discomfort.

An organism was obtained from the Johns Hopkins Pathological Laboratory called bacillus No. 16, which was found to be virulent for guinea-pigs in doses of 1 c. c. when introduced into the peritoneal cavity. Forty-eight-hour-old cultures were used for injection, and on July 24, 1900, a dose of 10 c. c. was injected into the tissues of the abdomen of hog No. 1. These injections were continued in increasing doses at intervals of about ten days until December 31, 1900, when the dose had reached 1130 c. c. of a pure bouillon culture of the typhoid bacillus. The temperature during all this time was never lower than 39.5° C., and never reached over 41° C. As the larger injections were given the animal would sometimes remain quiet for a day and lose its appetite. No sloughs occurred, and the health of the animal remained practically normal.

It is a difficult matter to inject such quantities as a liter of bouillon into the subcutaneous tissues of the abdomen of a hog, but we succeeded well by using the glass vessel intended for injecting salt solution. The fluid can be forced into the tissues by attaching the foot-bellows of a blast flame by rubber tubing to the glass tube entering the top of the salt-solution apparatus. The needle for injecting should be very stout, with a large lumen. The one which we used had a lumen of 1 mm. By this means a liter can be injected through two punctures of the skin, one-half a liter being forced into the loose tissue on each side of the groin. The skin should be washed and disinfected with 5 per cent. carbolic acid before each injection. Table No. 1 will show the date of each injection, the amount used, and the temperature twenty-four hours after injection.

As will be seen from the foregoing table, the animal was bled three times, 1 liter of blood being drawn each time, which yielded about 200 c. c. of serum. After the first bleeding a month elapsed, when 500 c. c. were again injected, and in two weeks the animal was again bled. This was again repeated, and serums No. 1, No.

2, and No. 3 were thus produced. This serum was kindly drawn and trikresolized at Mr. Mulford's laboratory, and we desire to thank him for his kindness.

THE AGGLUTINATIVE PROPERTIES.

A series of experiments had been carried on with this same hog, in which a liter of a pure bouillon typhoid culture was given to the animal as food every day for one month. This did not even cause a distinct agglutinative reaction at a dilution of 1 to 10. When the subcutaneous injections were begun, however, the agglutinative reaction began to rise, and on March 1, 1901, the serum gave a distinct agglutinative reaction at a dilution of 1 to 45,000. This was called serum No. 1. On April 12, after the second bleeding, the agglutinative reaction fell to 1 to 30,000, and on May 15, after the third bleeding, the serum only gave a reaction at 1 to 15,000. Only complete reactions after two hours were counted, and all of these showed complete agglutination and cessation of motility even after twenty-four hours. Table No. 2 will show the gradual increase in the power of the agglutinative reaction.

EXPERIMENTS UPON ANIMALS TO TEST THE IMMUNIZING POWER OF THE SERUM.

The virulence of the typhoid bacillus in guinea-pigs is very variable, and there are many typhoid bacilli which are only fatal to animals in large doses. Before beginning any experiments of a comparative nature between animals protected by the serum and unprotected animals it was necessary to find a virulent typhoid bacillus.

A typhoid bacillus was first used which had been obtained from the autopsy on a fatal case of typhoid fever at the Maryland University Hospital. Seven guinea-pigs were inoculated in the peritoneal cavity with 1 c. c. of a 24-hour bouillon culture of this bacillus, but they remained well at the end of two weeks. All of the guinea-pigs used in these experiments weighed between 300 and 400 grammes.

It was found that it was not profitable to use bouillon cultures of the typhoid bacillus for injection into animals, because such large doses were needed to produce fatal results. It was found to be much more convenient to use a growth from Loeffler's blood serum, and the following uniform method was pursued:

The blood serum slanted in a small tube measuring 15 mm. by 8 cm. will usually grow about four loopfuls of typhoid bacilli if the circumference of the loop measures 3 mm. in outside diameter. Four c. c. of sterile Dunham's solution were added to each blood-serum tube after the typhoid bacillus had been allowed to develop for twenty-four hours. The growth from the surface was thoroughly mixed with the sterile Dunham's solution, and each cubic centimeter of this suspension, therefore, equaled one loopful of a 24-hour slanted blood-serum culture of the typhoid bacillus.

Through the kindness of Dr. Cole of Johns Hopkins Hospital we obtained five different specimens of the typhoid bacillus, which

he had isolated from the blood of patients during life. Each of these five specimens were inoculated in doses of 2 c. c. into the abdominal cavity of two guinea-pigs, but bacillus No. 1 and bacillus No. 4 were the only organisms that proved virulent. These organisms killed the animals in twenty-four hours with purulent peritonitis and general septicemia. The animals inoculated with the other organisms all remained well for two weeks, and were then released.

The next series of experiments consisted of comparative tests between animals inoculated with the typhoid bacillus alone and those which had been protected by the serum before inoculation with the typhoid bacillus. Bacillus No. 1 and bacillus No. 4 were used for this purpose.

Two guinea-pigs were inoculated intraperitoneally with 2 c. c. of bacillus No. 1, and two other animals were inoculated with 2 c. c. of bacillus No. 4. All of these animals died in twenty-four hours of purulent peritonitis and general septicemia, the typhoid bacillus being recovered in pure culture from the abdominal cavity, the blood of the heart, and the various viscera.

Three guinea-pigs were given a subcutaneous injection of 1 c. c. of the protective serum, and three others were given 0.5 of a cubic centimeter. Two days later three of these same animals were given 2 c. c. of bacillus No. 1 by means of peritoneal injection, and three others were similarly inoculated with bacillus No. 4. All of these animals remained well for two weeks, and were then released.

It is seen from this that 0.5 c. c. of this serum injected subcutaneously protected these animals against doses that would have been otherwise fatal.

In order to determine whether the bacilli Nos. 1 and 4 were virulent and fatal for guinea-pigs in smaller doses than 2 c. c., two animals were inoculated with 1 c. c. of bacillus No. 1, and three animals were inoculated in the abdominal cavity with 0.5 of a cubic centimeter of this bacillus. Similar inoculations were also made with bacillus No. 4. All of these animals died in from twenty-four to forty-eight hours of typical experimental typhoid except two guinea-pigs. One of these had received 0.5 c. c. of bacillus No. 1, and the other had received 0.5 c. c. of bacillus No. 4. From these experiments it was assumed that the serum would protect guinea-pigs against four times the minimum fatal of these typhoid bacilli. Five pigs were inoculated intraperitoneally with 0.5 c. c. of bacillus No. 1, and two died in twenty-four hours, while the other three died in from four to nine days of experimental typhoid infection. This confirmed the minimum fatal dose as 0.5 of a cubic centimeter.

As we wished to see whether smaller doses of the serum would protect guinea-pigs against the typhoid bacillus No. 1, we injected 0.1 c. c. of serum No. 3 subcutaneously, and in two days these animals were inoculated with doses beginning with 0.5 c. c. of typhoid bacilli and increasing to 4 c. c. All died in twenty-four hours except the 0.5 c. c. and 1 c. c. pigs, which survived. This showed

that 0.1 c. c. of serum subcutaneously would protect only against twice the minimum fatal dose.

In order to increase the virulence of the laboratory stock culture of the typhoid bacillus, we introduced it inclosed in celloidin capsules within the peritoneal cavity of a guinea-pig, and allowed it to remain there for two weeks. This reduced the minimum fatal dose from 1 c. c. to 0.3 c. c., and this was the most virulent organism which we could obtain. We were compelled, therefore, to use much larger doses for comparative experiments than Abel and Loeffler, who used bacilli fatal in doses of 1-50 c. c.

Their experience also showed that if the serum was injected into the peritoneal cavity that it would protect against larger doses of typhoid bacilli than would subcutaneous injections of serum.

On July 25, 1901, five guinea-pigs were given 0.1 c. c. of serum No. 3 intraperitoneally, and in two days these animals were given 0.3-0.5, 0.7-0.8, and 1 c. c. of the bacillus whose minimum fatal dose was 0.3 c. c. All of the animals remained well for two weeks. On August 6 a second series of animals were given a similar dose of serum, and in two days they were given, respectively, 1 c. c., 1.5 c. c., 2 c. c., 2.5 c. c., and 3 c. c. of the same bacillus. The first two animals survived, showing that 0.1 c. c. of the serum No. 3 would protect against five times the minimum fatal dose of the typhoid bacillus, since this dose was 0.3 of a c. c. Five guinea-pigs inoculated with the same doses of bacilli after protection with 0.5 c. c. of serum gave even better results. Only the 2.5 c. c. and 3 c. c. pigs died, showing that 0.5 c. c. of serum injected intraperitoneally will protect against about seven times the minimum fatal dose.

These animal experiments might be summarized by stating that the subcutaneous injection of the serum in doses of from 1-600 to 1-800 of the body weight will protect guinea-pigs against four times the minimum fatal dose of intraperitoneal injection with the typhoid bacillus. The injection of 1-3000 to 1-4000 of the serum by weight into the abdominal cavity will protect against five times the minimum fatal dose, and a dose of 1-600 to 1-800 of the body weight will protect against seven times the minimum fatal dose of the typhoid bacillus.

It was not expected that this serum would exhibit any marked antitoxic properties, but in order to determine this the typhoid bacillus was grown on blood serum and destroyed by a temperature of 60° C. for one hour. Five guinea-pigs were inoculated with 0.3-0.5, 0.8, 1 and 1.2 c. c. of dead bacilli, and the last two animals died in twenty-four hours, while the others survived. The minimum fatal dose was therefore 1 c. c. of dead bacilli. Ten pigs were given 0.5 of serum, and were then inoculated with doses of dead bacilli varying from 0.8 c. c. of the suspension from the blood serum to 2.5 c. c. The two pigs given 2.5 c. c. and one pig given 1.5 c. c. died of toxemia in twenty-four hours, but the seven other pigs which had been given 2 c. c., 1.5 c. c., 1 c. c., and 0.8 c. c. of

dead bacilli survived the inoculation. The serum seems to protect against about twice the fatal dose of dead typhoid bacilli.

TREATMENT OF HUMAN CASES WITH SERUM.

Chantemesse² has prepared a serum which he calls an antitoxin. He considers that a large amount of toxin is absorbed from the intestines in typhoid fever, and that it should be neutralized by an antitoxin. The toxin is prepared by filtering a fluid culture and injecting this into a horse in gradually increasing doses. The serum of the horse in doses of .01 c. c. prolonged the lives of guinea-pigs injected with the soluble toxin. He injected human cases of typhoid fever with this serum, and thought that he noted some benefit, with a lessening of the temperature.

The serum which we have produced is intended to act against the bacilli themselves. Cole³ has lately shown that a great many cases of typhoid fever contain the bacilli in the blood current. Can these bacilli be acted upon by the introduction of an artificial serum of high immunizing strength? Experiments upon animals would seem to show that such is the case. Abel and Loeffler gave a number of guinea-pigs double the fatal dose of typhoid bacilli, and then after varying lengths of time they treated them with 0.5 cm. of their protective serum. The animals could be rescued by injections of serum as late as eight hours after infection. After this they were not saved by the serum.

Ehrlich, Bordel, Wasserman, and others have already clearly shown that the bacteria are destroyed in artificial immunity by the joint action of two distinct substances. One is called the intermediate body, or "Zwischenkorper." This is produced in the blood when the animals are immunized by the injection of non-fatal doses of various bacteria. It is also called the immune body.

The second substance is called the complement, or "Endkorper," and is a sort of digestive ferment always present in the blood. It is destroyed by a temperature of 60°, while the immune body is not. In order to produce an artificial immunity the immune body and the complement must both be present, and the latter will not destroy bacteria unless the immune body is also present to bind it to the bacterial cells. Both, therefore, are necessary.

The immune body is the only one present in highly immune serum, and all attempts at serumtherapy, including our own, have simply injected serum containing this immune body into the patient. The needful complement or digestive ferment which dissolves and destroys the bacteria is used up during infection, and we forget to supply this in our zeal to furnish immune serum. Wasserman⁴ found that normal bovine serum contained the complement necessary for the immune body to prevent infection in guinea-pigs. Animals inoculated intraperitoneally with three loopfuls of a virulent typhoid organism, and then protected only with 0.5 cm. of an immune serum, died with general infection. If similar doses of typhoid bacilli and serum were given to other animals, but 4 cm. of normal serum of a cow were also injected, the

animals lived. This showed that the cow's serum supplied the complement, which the immune body could act upon, forcing the complement of the cow's serum to destroy the bacteria.

Mark Richardson⁵ has verified this principle of Wasserman's by a most interesting series of observations on the digestive properties of the serum of typhoid patients towards typhoid bacilli. He found that if he added a loopful of typhoid bacilli to the serum of a typhoid-fever patient that no digestion of bacteria took place, and in twenty-four hours 2000 colonies grew from the mixture. The complement was absent during the disease, and therefore no destruction of the bacilli took place. If, on the contrary, he first added his own healthy blood to the typhoid blood, he supplied the missing complement. When a loopful of typhoid bacilli was added to this mixture the result was far different. In two hours the bacilli were almost all dissolved and digested into small granules, and in twenty-four hours a plate from the mixture only showed one colony.

These experiments are a clear indication that a normal serum containing a complement reacting to the immune body is quite as important in typhoid fever as a highly immune serum.

RESULT OF TREATMENT.

Up to the present time only five cases of typhoid fever have been treated with this serum, and it would be useless to attempt to draw any conclusions from such a small number of cases. Yet it may be of some interest to briefly mention a few points concerning these patients.

Cases No. 1 and 2 were treated at the Johns Hopkins Hospital through the kindness of Dr. Osler. It cannot be said that the doses of serum given had any appreciable effect upon the temperature, pulse, or other symptoms.

In case No. 1 the serum treatment was begun on the thirteenth day, and continued for five days in doses of from 10 to 20 c. c. at each injection. Sixty-five c. c. were used in treating this case. The patient ran an even temperature of from 102° to 104° , and the temperature reached normal on the twenty-eighth day of the disease. The case pursued a mild course.

In case No. 2, 120 c. c. were injected in doses of 20 c. c. for six days. The injections were begun on the ninth day. The temperature varied from 101° to 103° , and reached normal on the twenty-second day. On the twenty-seventh day a relapse occurred, which only lasted ten days. This case also ran a mild course.

Cases Nos. 3, 4, and 5 seemed to show some improvement after the serum treatment. Case No. 3 started out with a temperature of from 103° to 104° , and on the fifth day after entrance the serum was injected. Two hundred c. c. were injected, 40 c. c. being used in two injections daily. This caused no harmful symptoms, and the urine remained normal. The temperature began to steadily decline after the first injection, and reached normal on the seven-

teenth day. Case No. 4 pursued a similar course, and reached normal on the fourteenth day. Sixty-four c. c. of serum were used in this case.

Case No. 5 was that of a case of typhoid fever with pregnancy, in which the woman aborted at six and one-half months during the fever. The urine contained albumen and casts during the entire attack. Before the administration of the serum the temperature ranged from 103° to 106.5° , but on the sixth day after going to bed 10 c. c. of serum was given, and similar doses were given for six days. Soon after the first injection of the serum the temperature began to fall, and on the fourteenth day it reached normal. After that the patient made an uneventful recovery.

All of these cases treated showed few, if any, other symptoms except fever, but it will take many more cases to show whether the use of a serum of a high immunizing strength is by itself of any benefit in typhoid fever.

JULY 24, 1900.

TABLE NO. 1.

Pig inoculated with 10 c.c. of No. 16 Hopkins typhoid bacillus; 1 c.c. of which killed a guinea-pig in twenty-four hours, the bacillus being recovered from the liver and abdominal cavity; bacillus from liver employed.

DATE.		DOSE OF BACILLI.	TEMPERATURE.
July	24, 1900.....	10 C. C.	41°
July	27, 1900.....	100 C. C.	41°
July	30, 1900.....	110 C. C.	41°
August	4, 1900.....	130 C. C.	—
August	24, 1900.....	150 C. C.	39.8°
August	25, 1900.....	150 C. C.	39.8°
August	28, 1900.....	150 C. C.	40°
August	29, 1900.....	200 C. C.	40°
August	30, 1900.....	200 C. C.	39.5°
August	31, 1900.....	200 C. C.	39.8°
September	1, 1900.....	250 C. C.	39.5°
September	3, 1900.....	250 C. C.	40°
September	15, 1900.....	300 C. C.	40.5°
October	4, 1900.....	650 C. C.	—
October	5, 1900.....	650 C. C.	40°
October	7, 1900.....	650 C. C.	40°
October	10, 1900.....	650 C. C.	39.5°
October	20, 1900.....	800 C. C.	—
October	21, 1900.....	800 C. C.	40°
November	1, 1900.....	800 C. C.	—
November	25, 1900.....	1000 C. C.	—
November	28, 1900.....	1000 C. C.	40°
December	14, 1900.....	1000 C. C.	—
December	31, 1900.....	1100 C. C.	—

BLEEDINGS OF THIS ANIMAL.

DATE.	
February 15, 1901.....	Injected 500 c.c.
February 27, 1901.....	Bled, 200 c.c. serum obtained.
March 14, 1901.....	Injected 500 c.c.
March 21, 1901.....	Bled, 200 c.c. serum obtained.
April 5, 1901.....	Bled, 200 c.c. serum obtained.
May 1, 1901.....	Injected 500 c.c.
May 15, 1901.....	Bled, 250 c.c. serum obtained. Animal died.

TABLE NO. 2.

AGGLUTINATION EXPERIMENTS.—Record of Widal test in pig injected with cultures of the typhoid bacillus.

DATE OF TEST.		RESULTS.	DILUTION.
August	22, 1900.....	+	I-100
August	22, 1900.....	+	I-500
August	22, 1900.....	+	I-1000
August	22, 1900.....	—	I-2000
August	22, 1900.....	—	I-5000
August	22, 1900.....	—	I-10000
August	22, 1900.....	—	I-15000
August	29, 1900.....	+	I-1000
August	29, 1900.....	+	I-1500
August	29, 1900.....	+	I-2000
September	15, 1900.....	+	I-1500
September	15, 1900.....	+	I-2000
September	15, 1900.....	Slight.	I-3000
September	15, 1900.....	Slight.	I-4000
October	16, 1900.....	Slight.	I-5000
October	16, 1900.....	+	I-4000
November	1, 1900.....	+	I-3000
November	1, 1900.....	+	I-4000
November	13, 1900.....	+	I-4000
November	13, 1900.....	+	I-5000
November	13, 1900.....	+	I-6000
November	13, 1900.....	+	I-7000
November	20, 1900.....	—	I-8000
November	20, 1900.....	—	I-9000
December	4, 1900.....	+	I-7000
December	4, 1900.....	+	I-8000
December	15, 1900.....	+	I-9000
December	15, 1900.....	+	I-10000
<i>Serum No. 1, Drawn Feb. 27, '01.</i>			
March	13, 1901.....	+	I-14000
March	13, 1901.....	+	I-15000
March	13, 1901.....	+	I-6000
March	13, 1901.....	+	I-17000
March	13, 1901.....	+	I-20000
March	21, 1901.....	+	I-22000
March	21, 1901.....	+	I-24000
March	21, 1901.....	+	I-26000
March	21, 1901.....	+	I-28000
March	21, 1901.....	+	I-30000
March	28, 1901.....	+	I-32000
March	28, 1901.....	+	I-34000
March	28, 1901.....	+	I-36000
March	28, 1901.....	+	I-38000
March	28, 1901.....	+	I-40000
April	12, 1901.....	+	I-45000
April	12, 1901.....	Slight.	I-50000
April	12, 1901.....	Slight.	I-55000
April	12, 1901.....	—	I-60000
April	12, 1901.....	Slight.	I-65000
<i>Serum No. 2, Drawn Mar. 10, '01.</i>			
April	13, 1901.....	+	I-15000
April	13, 1901.....	+	I-20000
April	13, 1901.....	+	I-25000
April	13, 1901.....	+	I-30000
April	13, 1901.....	+	I-35000
<i>Serum No. 3, Drawn April 5, '01.</i>			
May	1, 1901.....	+	I-15000

TABLE NO. 3—SHOWING ANIMAL EXPERIMENTS.

NO. OF GUINEA FIG.	DOSE OF SERUM NO. 3.	DOSE OF TYPHOID BACILLUS.	DIED.	RESULT OF AUTOPSY.
No. 1.....	None.....	1 c.m. Bouillon Culture.....	No.	
No. 2.....	None.....	1 c.m. Bouillon Culture.....	No.	
No. 3.....	None.....	1 c.m. Bouillon Culture.....	No.	
No. 4.....	None.....	1 c.m. Bouillon Culture.....	No.	
No. 5.....	None.....	1 c.m. Bouillon Culture.....	No.	
No. 6.....	None.....	1 c.m. Bouillon Culture.....	No.	
No. 7.....	None.....	1 c.m. Bouillon Culture.....	No.	
No. 8.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 9.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 10.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 2.....	No.	
No. 11.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 2.....	No.	
No. 12.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 3.....	No.	
No. 13.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 3.....	No.	
No. 14.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 15.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	Yes; 74 hours..	Purulent Peritonitis; General Septicemia.
No. 16.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 5.....	No.	
No. 17.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 5.....	No.	
No. 18.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 19.....	None.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 20.....	1 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	No.	
No. 21.....	1 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	No.	
No. 22.....	1 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	No.	
No. 23.....	1 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	No.	
No. 24.....	1 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	No.	
No. 25.....	1 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	No.	
No. 26.....	0.5 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	No.	
No. 27.....	0.5 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 1.....	No.	
No. 28.....	0.5 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	No.	
No. 29.....	0.5 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	No.	
No. 30.....	0.5 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	No.	
No. 31.....	0.5 c.m. Subcutaneous.....	2 c.m. Suspension fr. Serum, Bacillus No. 4.....	No.	
No. 32.....	None.....	1 c.m. Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 33.....	None.....	1 c.m. Bacillus No. 1.....	Yes; 48 hours..	Purulent Peritonitis; General Septicemia.
No. 34.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 35.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 36.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 37.....	None.....	1 c.m. Bacillus No. 4.....	Yes; 36 hours..	Purulent Peritonitis; General Septicemia.
No. 38.....	None.....	1 c.m. Bacillus No. 4.....	Yes; 24 hours..	Not Autopsied.
No. 39.....	None.....	0.5 c.m. Bacillus No. 4.....	Yes; 48 hours..	Not Autopsied.
No. 40.....	None.....	0.5 c.m. Bacillus No. 4.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 41.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 42.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 43.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 44.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 5 days....	No Autopsy.
No. 45.....	None.....	0.5 c.m. Bacillus No. 1.....	Yes; 9 days....	No Autopsy.

TABLE NO. 3.—SHOWING ANIMAL EXPERIMENTS.—CONTINUED.

NO. OF GUINEA PIG.	DOSE OF SERUM NO. 3.	DOSE OF TYPHOID BACILLUS.	DIED.	RESULT OF AUTOPSY.
No. 46.....	None	0.5 c.m. Bacillus No. 1.....	Yes; 4 days....	No Autopsy.
No. 47.....	0.1 c.m. Subcutaneous..	0.5 c.m. Bacillus No. 1.....	No.	Purulent Peritonitis; General Septicemia.
No. 48.....	0.1 c.m. Subcutaneous..	1.0 c.m. Bacillus No. 1.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 49.....	0.1 c.m. Subcutaneous..	1.5 c.m. Bacillus No. 1.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 50.....	0.1 c.m. Subcutaneous..	2.0 c.m. Bacillus No. 1.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 51.....	0.1 c.m. Subcutaneous..	2.5 c.m. Bacillus No. 1.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 52.....	0.1 c.m. Subcutaneous..	3.0 c.m. Bacillus No. 1.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 53.....	0.1 c.m. Subcutaneous..	3.5 c.m. Bacillus No. 1.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 54.....	0.1 c.m. Subcutaneous..	4.0 c.m. Bacillus No. 1.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 55.....	None	1.0 c.m. Bacillus fr. capsule to increase virulence.	Yes.....	Purulent Peritonitis; General Septicemia.
No. 56.....	None	0.5 c.m. Bacillus fr. capsule to increase virulence.	Yes.....	Purulent Peritonitis; General Septicemia.
No. 57.....	None	0.3 c.m. Bacillus fr. capsule to increase virulence.	Yes.....	Purulent Peritonitis; General Septicemia.
No. 58.....	None	0.2 c.m. Bacillus fr. capsule to increase virulence.	Yes.....	Purulent Peritonitis; General Septicemia.
No. 59.....	None	0.1 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 60.....	0.1 c.m. Intraperitoneal.	0.3 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 61.....	0.1 c.m. Intraperitoneal.	0.5 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 62.....	0.1 c.m. Intraperitoneal.	0.8 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 63.....	0.1 c.m. Intraperitoneal.	1.0 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 64.....	0.1 c.m. Intraperitoneal.	1.5 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 65.....	0.1 c.m. Intraperitoneal.	2.0 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 66.....	0.1 c.m. Intraperitoneal.	2.5 c.m. Bacillus fr. capsule to increase virulence.	Yes; 48 hours..	Purulent Peritonitis; General Septicemia.
No. 67.....	0.1 c.m. Intraperitoneal.	3.0 c.m. Bacillus fr. capsule to increase virulence.	Yes; 24 hours..	Purulent Peritonitis; General Septicemia.
No. 68.....	0.1 c.m. Intraperitoneal.	3.5 c.m. Bacillus fr. capsule to increase virulence.	Yes; 24 hours..	No Autopsy.
No. 69.....	0.5 c.m. Intraperitoneal.	1.0 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 70.....	0.5 c.m. Intraperitoneal.	1.5 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 71.....	0.5 c.m. Intraperitoneal.	2.0 c.m. Bacillus fr. capsule to increase virulence.	Yes.....	Purulent Peritonitis; General Septicemia.
No. 72.....	0.5 c.m. Intraperitoneal.	2.5 c.m. Bacillus fr. capsule to increase virulence.	Yes.....	No Autopsy.
No. 73.....	0.5 c.m. Intraperitoneal.	3.0 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 74.....	0.5 c.m. Intraperitoneal.	3.5 c.m. Bacillus fr. capsule to increase virulence.	No.	No.
No. 75.....	None	0.3 c.m. Dead Bacilli.....	Yes.....	Purulent Peritonitis; General Septicemia.
No. 76.....	None	0.5 c.m. Dead Bacilli.....	No.	No.
No. 77.....	None	0.8 c.m. Dead Bacilli.....	No.	No.
No. 78.....	None	1.0 c.m. Dead Bacilli.....	Yes.....	Focal Necroses, Gen'l Congestion, Fatty Degeneration.
No. 79.....	None	1.2 c.m. Dead Bacilli.....	Yes.....	Focal Necroses, Gen'l Congestion, Fatty Degeneration.
No. 80.....	0.5 c.m.	0.8 c.m. Dead Bacilli.....	No.	No.
No. 81.....	0.5 c.m.	0.8 c.m. Dead Bacilli.....	No.	No.
No. 82.....	0.5 c.m.	1.0 c.m. Dead Bacilli.....	No.	No.
No. 83.....	0.5 c.m.	1.0 c.m. Dead Bacilli.....	Yes.....	Focal Necroses.
No. 84.....	0.5 c.m.	1.5 c.m. Dead Bacilli.....	No.	No.
No. 85.....	0.5 c.m.	1.5 c.m. Dead Bacilli.....	No.	No.
No. 86.....	0.5 c.m.	2.0 c.m. Dead Bacilli.....	No.	No.
No. 87.....	0.5 c.m.	2.5 c.m. Dead Bacilli.....	Yes.....	Focal Necroses, Enlarged Spleen, General Congestion.
No. 88.....	0.5 c.m.	2.5 c.m. Dead Bacilli.....	Yes.....	No Autopsy.
No. 89.....	0.5 c.m.	2.5 c.m. Dead Bacilli.....	Yes.....	No.
No. 90.....	0.5 c.m.	2.5 c.m. Dead Bacilli.....	Yes.....	No.

CONCLUSIONS.

It is not difficult to produce a serum of high agglutinative strength and immunizing power by injecting the hog with pure typhoid cultures.

Although little can be learned from five cases, the use of this serum seemed to produce a slight favorable effect in three cases.

We are preparing more serum, and hope to use it soon on other cases in combination with the normal serum of various animals.

LITERATURE.

¹Centralbl. f. Bak. Erst. Abt., January 23, 1896.

²Gazette des Hopitaux.

³Johns Hopkins Bulletin, July, 1901.

⁴Deutsch. med. Wochenschr., No. 18, 1900.

⁵Journal of Medical Research, Vol. VI, No. 1.

ANEURISM OF THE TRANSVERSE AND DESCENDING PORTION OF THE AORTIC ARCH.

By Nathan R. Gorter, M.D.,

Surgeon to the Cambridge Hospital, Cambridge, Md.

JAMES NAVY, a native of Dorchester county, aged forty, married, was admitted to the Cambridge Hospital March 26, 1902. Dr. R. L. Linthicum, his family physician, states that one year previous to admission he began to have attacks of dyspnea and a peculiar cough. Dr. Shriver, who subsequently attended him, states that for the last two months the patient's condition was similar to that which we found upon his admission to the hospital. The patient was a man about six feet in height, thin, muscular, somewhat stooped. He was very pale, and there was a slight bluish tinge to his skin. He had a characteristic brassy cough, slight expectoration, and had lost about fifty pounds. There was some suggestion of laryngeal tuberculosis, but laryngoscopic examination by Drs. Goldsborough and Reik failed to show any disease in that organ. An examination of sputum by Dr. Stokes also gave negative results. The patient had a very peculiar way of sitting up in bed doubled over, and, as a rule, when in any other position terrific attacks of dyspnea would follow. He would become cyanotic, and in each attack death seemed imminent. Careful examination of the chest failed to reveal any cardiac lesion, and no

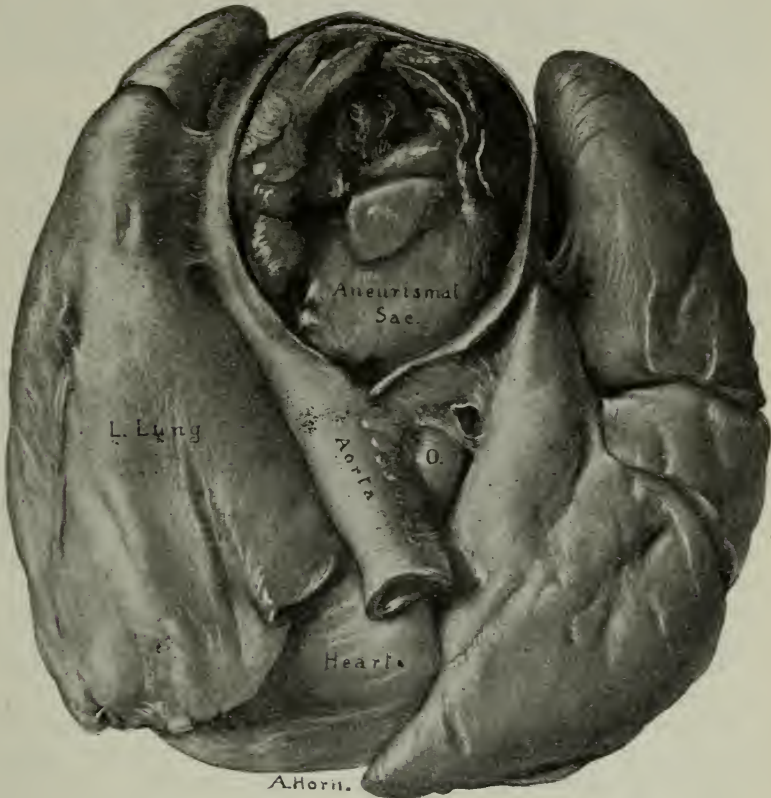


FIG. I.—ANEURISM OF THE AORTA OCCUPYING THE TRANSVERSE AND DESCENDING ARCH.

The thoracic contents have been removed *en masse*, and are viewed from behind. Occupying almost the entire space between the apices of lungs, is the aneurismal sac. This is filled with partially organized blood clots. The posterior wall of the aorta is entirely wanting and the clots rested directly on the upper dorsal vertebrae which were much eroded thereby. Between the sac and the upper portions of the lungs are a few adhesions. A small portion of the esophagus is recognized at O.

bruit could be anywhere detected, notwithstanding the fact that the brassy cough persisted. There was no difficulty in swallowing either liquid or solid food. On his admission to the hospital the dyspnea was so marked that surgical interference was clearly indicated. The condition was so critical that an anesthetic could not be given, so I did tracheotomy under cocaine, the patient sitting bold upright, with his head forward. Under these conditions the operation was fraught with much difficulty, but was followed by immediate and marked relief.

April 9, two weeks later, Dr. Cullen, during his regular visit to the hospital, saw the patient. His color was better, but he still had considerable difficulty in breathing—nothing comparable, however, to the distress that he had experienced before the tracheotomy. Subsequent to operation he had a few distressing attacks of dyspnea, only controlled by morphia. At 8 o'clock he had another severe attack of dyspnea, becoming markedly cyanotic, and soon lapsed into unconsciousness. This attack continued, and he died at midnight.

Dr. Cullen performed the autopsy about an hour and one-half afterward, and found the larynx and trachea perfectly normal. The lungs showed no alteration, but they were much collapsed. The pericardial sac contained a considerable amount of clear limpid fluid. The heart was somewhat dilated, the valves on both sides normal. The ascending arch of the aorta was considerably dilated; the transverse portion showed little change. There was, however, an atheromatous patch at one point. At the junction of the transverse and descending portion was an opening 1.5 cm. in diameter. This communicated with the large sac lying posterior to the aorta and directly on the vertebral column (Fig. 1). This sac was fully 15 cm. in length and at least 9.5 cm. in breadth. It was filled with partially-organized blood-clots, and lay directly on the vertebra, the anterior surface of the upper six dorsal vertebrae being roughened and eroded. There was, in other words, an aneurism of the arch which had ruptured posteriorly, but did not give rise to marked hemorrhage on account of it being confined laterally, posteriorly, and also anteriorly. No further examination was undertaken.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

THE PASSAGE OF THE AGGLUTININ FROM THE MOTHER TO THE FETUS DURING TYPHOID FEVER.

Rouslacroix (*La Presse médicale*, April 2, 1902) reports some extremely interesting cases in connection with the question of the passage of the agglutinin from the mother to the fetus during a recent epidemic of typhoid fever carefully studied by him. He first considers carefully the literature of the subject, and from this study divides the cases which have been hitherto reported into three distinct classes:

1. The fetus is infected during pregnancy, as observed by Chantemesse and Widal, Eberth, Freunde and others. Marfan in a careful study of this class of cases has demonstrated that the typhoid bacillus is able to pass from the mother to the fetus through a placenta healthy in appearance, but which histologically presents various lesions. In these conditions the fetus dies in utero, or if it is living at the moment of birth, it is feeble, shows signs of a general infection, and quickly succumbs. At the autopsy one does not find the intestinal lesions of typhoid fever, but there is a general infection due to the bacillus of Eberth.

2. In the second class are found those cases in which the toxins from the mother pass through the placenta into the fetal organism and make their presence known by the fact that the Widal reaction is present in the blood of the fetus at the moment of birth. In the majority of cases the child is prematurely born, but if the mother's typhoid occurs towards the end of pregnancy, the child may be born with no sign of typhoid fever except the positive agglutinating property of its blood. Cases of this kind have been reported by Mossé and Fraenkel, Widal and Sicard, Schumacher and others. The agglutinating power of the fetus is always more feeble than that of the mother, rarely giving positive results in dilutions greater than from 1 to 20 to 1 to 40, while in the majority of cases the reaction takes several hours to become complete.

3. In the third class of cases, of which but few examples have been reported as yet, the fetus entirely escapes the typhoid, and the placenta acts as a perfect filter, neither bacilli, toxin nor anti-toxins being found in the fetus. Etienne, Charrier and Appert, and Planchu and Gallagardin are the only authors who have reported cases of this kind.

After considering these possibilities, Rouslacroix gives his cases in detail. The first case was that of a woman pregnant eight months, who had been sick for ten days with a typical attack of typhoid fever, with all the characteristic symptoms, and with posi-

tive diazo and Widal reactions. A short time after admission the woman went into premature labor, and two infants were born, living and well-formed. The mother died the next day, while the children survived five and six days, respectively. The children showed signs of edema of the face and lower limbs, and a severe jaundice from the second day, while at the autopsy there were no intestinal lesions; the liver was large and the spleen small in both cases. The typhoid bacilli could not be grown from either fetus, while the comparative results of the serum reaction in the case of the maternal blood, the blood from the umbilical vein, the blood from the two fetuses, and the amniotic fluid was as follows:

(a) The serum reaction of the mother's blood was positive in dilutions of 1 to 10, 1 to 20, and 1 to 100.

(b) The serum reaction of the blood from the umbilical vein was negative in a dilution of 1 to 10.

(c) The serum reaction of the amniotic fluid was negative at 1 to 10.

(d) The serum reaction of the blood of the two infants examined ten hours after birth was negative in dilution of 1 to 10.

The same negative results were obtained in the infants' blood on the second and on the fifth day of their lives.

This case is one of extreme interest, for it shows that the fetuses had entirely escaped the typhoid infection, while the negative result in the case of the blood of the umbilical vein accentuates the point that in this case the placenta acted as a perfect barrier to the diffusion of toxins and antitoxins.

Rouslacroix's second case was that of a woman nineteen years of age, who entered the hospital on the tenth day of an illness all the symptoms of which were typical of typhoid fever, and where positive diazo and Widal reactions were obtained. From the examination of the uterus the patient seemed to be eight months pregnant. The infant was born on the third day after the patient's admission to the hospital, and died about twenty-four hours after birth, the autopsy showing that the cause of death was an intestinal obstruction due to invagination. The mother recovered completely from the attack of typhoid fever. The results of the serum reaction were as follows:

(a) The serum reaction in the case of the mother's blood was positive in a dilution of 1 to 200 at the end of fifteen minutes.

(b) The serum reaction of the blood from the umbilical vein was positive at 1 to 10 at the end of one and one-half hours, but negative at 1 to 20.

(c) The blood from the mother's uterus was positive in a dilution of 1 to 200 in fifteen minutes.

(d) The serum reaction of the blood of the child was negative in dilution of 1 to 20 at the end of one to two hours, while a few clumps were met with in a dilution of 1 to 10. The examination of the fetus, post-mortem, in regard to the serum reaction was extremely interesting, the reaction being absolutely negative at 1 to 10 after two hours in the case of the blood from the right heart

and the femoral vein, while it was positive in dilution of 1 to 10 after one and one-half hours, although negative at 1 to 20, in the blood taken at the junction of the umbilical and omphalo-mesenteric veins.

No typhoid bacilli could be obtained from the blood or from any of the organs of this fetus.

In explaining this interesting case Rouslacroix believes that a certain amount of soluble products of the typhoid bacillus had been able to pass through the placenta, but that the liver of the fetus was able to act as a filter to these products, preventing their general circulation in the infant, and he believes this case confirms the opinion of Mossé and Fraenkel that the passage of the typhoid toxin through the placenta depends upon two factors, the intensity of the maternal infection and the length of time during which toxic substances have remained in contact with the placenta.

Thus the presence or the absence of toxins or antitoxins in the fetal blood depends largely upon the length of time elapsing between the beginning of the maternal typhoid and the expulsion of the fetus. As a rule the agglutinins appear in the blood of patients ill with typhoid at the end of the first or the beginning of the second week, while as a rule labor occurs about forty days after the beginning of the disease, at the very most.

Rouslacroix in considering this point in connection with those cases in which the agglutinating reaction was not met with in the fetal blood found that the average of the five cases showed that the fetus was expelled on the fourteenth day of the disease—that is, that the placenta was impregnated with the typhoid toxins, antitoxins, and agglutinins for about seven days.

Rouslacroix's conclusions are:

(1) There is no constant connection between the premature expulsion of the fetus and the intoxication of the fetus by the typhoid fever of the mother.

(2) The placenta during the beginning of an attack of typhoid exercises a distinct arrest to the passage of the maternal toxins and antitoxins. Thus the agglutinins are more likely to be found in mild cases of typhoid fever where the delivery occurs towards the end of the attack than in those intense infections of the mother which so often bring about an extremely rapid expulsion of the fetus.

The liver of the fetus seems to furnish a second barrier to the agglutinins, so that by this means their diffusion in the fetal organism may be delayed.

* * *

MASTITIS IN TYPHOID FEVER.

McCrae (*Johns Hopkins Hospital Bulletin*, January, 1902) reports three cases of this extremely rare complication of typhoid fever. In reviewing the literature he has found but few cases. Berg reports four cases of mastitis in 1626 cases of typhoid fever; Leudet reports five cases during a period of about ten years, all in young women, and only one of whom had nursed a child; Destree

reports two cases, both in males, while West, Fornaca, Cappellari, and Davis, Patterson and Hewlett each report one case. McCrae's three cases, were: (1) A severe attack of typhoid fever, mastitis on the thirtieth day, suppuration, incision, recovery; (2) moderate attack of typhoid fever, mastitis in right breast on thirteenth day, in left breast on the eighteenth day, relapse; second attack of mastitis in the left breast on the fifty-second day, recovery; (3) moderate attack of typhoid fever, during convalescence abscess in right breast, opened, rapid recovery. All were in women, and all had borne children. McCrae's conclusions are as follows:

1. Mastitis is a rare complication of typhoid fever, and usually occurs late in the attack.
2. It occurs in both sexes, and is apparently not associated with the functioning gland.
3. Both breasts are involved in about half the cases.
4. Suppuration occurs in about half the cases, and may be associated with the typhoid bacillus or with the staphylococcus.
5. It is of no special moment in the prognosis.

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A CONTRIBUTION TO THE STUDY OF THE ETIOLOGY OF TUBERCULOSIS.

Heller (*München med. Wochenschrift*, 1902, No. 15) reports two observations intending to show the possibility of tuberculous infection in human beings from the milk of tuberculous cows. The first case was that of a boy seventeen years old, who entered the hospital suffering with lupus upon the hands. This had followed upon a tattooing of the hand, which had been done by first making the punctures, and then washing off the spot with milk. The eruption appeared fifteen days after the tattooing, and the examination of these nodules showed the presence of typical tubercles with giant cells, but, as often happens, without the tubercle bacilli. The second argument in favor of the possibility of the transmission of tuberculous infection from cows to human beings is obtained from his autopsy records of infants dying of diphtheria. Of 147 autopsies of children who died of diphtheria, two cases of primary tuberculosis of the intestines were noted, eight cases of primary tuberculosis of the intestine and of the mesenteric glands, and thirty-three cases of primary tuberculosis of the mesenteric glands.

According to the author, the case of lupus reported above and the autopsy findings in the cases of diphtheria strongly oppose Koch's idea of the non-identity of bovine and human tuberculosis.

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TUBERCULOSIS AMONG COLD-BLOODED ANIMALS.

Hertzog (*Centralblatt für Bakteriologie*, February 5, 1902), from a series of researches carried on to determine the unsettled questions regarding tuberculosis in cold-blooded animals, comes to the following conclusions:

1. In accord with Bataillon and Terre, Dubard, Auché, and

Hobbs, Ramond, and Ravaut, and in opposition to Sion and Lubarsch, the tubercle bacillus from mammals gives rise in frogs to macroscopic and microscopic reactions, which are quite comparable to those produced by the bacillus of tuberculosis from fish.

2. In accord with Lubarsch, in opposition to Sion, Auché, and Hobbs, the bacillus of tuberculosis from mammals does not remain for a long time confined to the points of inoculation, but soon disseminates itself into all the organs, where it finds, even at ordinary temperature, good conditions for its development.

3. A single research made to determine whether the tubercle bacillus from mammals after being transplanted into cold-blooded animals is still pathogenic to mammals shows that in these conditions the bacillus, having become pathogenic for cold-blooded animals, is no longer so for mammals. As to the time which the bacillus has to remain in the cold-blooded animal to bring about this diminution of virulence the various authors differ. According to Bataillon and Terre, it is eleven days; according to Lubarsch, six to eight weeks; according to Auché and Hobbs, sixty-eight days. Sion, on the other hand, observed no diminution in virulence in a bacillus which had remained six months in the peritoneal cavity of the frog. Hertzog thinks that these variations may probably be explained by the variable virulence of the different microbes employed.

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THE SKIN ERUPTIONS CONSECUTIVE TO THE INJECTIONS OF ANTIDIPHTHERITIC SERUM.

Stanley (*British Medical Journal*, February 15, 1902) gives the result of his observations on skin eruptions occurring after the use of antitoxin among 500 cases of diphtheria uniformly treated by this method. Eruptions were observed in about a quarter of the cases. In general these manifested themselves during the course of the second week after the initial injection. The common type was that of a patchy erythema, lasting, as a rule, three days, and accompanied by a slight elevation of temperature. Several patches may subsequently unite into one large patch. The face is usually affected first, then the trunk, then the limbs. The flexor surfaces are affected before the extensor surfaces.

Other times a slight scarlatini-form eruption is met with, disappearing in a few hours, and followed by a slight desquamation. The urticaria-like eruption Stanley believes to be simply an erythema accompanied by an excessive exudation beneath the epidermis, and this frequently is transformed subsequently into the patchy erythema mentioned above.

The author has met with no cases of articular pain in connection with these eruptions.

According to Stanley, there is no definite connection between the quantity of serum used and the frequency of the eruptions.

TREATMENT OF SYPHILIS WITH INTRAMUSCULAR INJECTIONS OF HERMOPHENYL.

Nicolle (*La revue médicale de Normandie*, April 25, 1902) believes that he has obtained an ideal form in which to administer mercury in hermophenyl. Although many preparations of mercury have been hitherto described for intramuscular or subcutaneous injections, most of them are not free from criticism, for the insoluble preparations of mercury require a long period of time for absorption, and may lead to severe accidents, while the soluble forms are often of very feeble strength, and the fact that they have to be repeated daily renders their use extremely dangerous in the hands of a large number of practitioners.

Hermophenyl is a compound of mercury, phenol, and sodium sulphate, containing 40 per cent. of mercury, and very soluble in water. Nicolle has used this drug in ninety-four syphilitic cases in his service at Rouen. Primary, secondary, and tertiary cases were all met with in this series. Nine hundred and eight injections in all were used; the solution employed was 1 to 100, the dose 2 c. cm.—that is, 8 mg. of metallic mercury. The injections were given twice a week at first, later once a week. The injections were made into the gluteal muscles, and were never accompanied by any inconvenience.

The results have been more favorable, according to Nicolle, than with any other preparation of mercury. In only one case was a stomatitis observed, which was mild and followed the eleventh inoculation, while a local induration was noted in two cases at the point of inoculation, without, however, producing any inconvenience. Nicolle therefore recommends hermophenyl as a most satisfactory method of administering mercury in specific cases.

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THE CHOICE OF AN ANESTHETIC.

Chaput (*La Presse médicale*, June 11, 1902) considers carefully the question of the choice of the proper anesthetic from his experiences at the Hospital Broussais. He first gives a rapid, but interesting history of the change in our views regarding anesthetics, and how there is an ever-increasing tendency towards the employment of local anesthesia. The conclusions of his article are as follows: For small operations local cocainization or inhalations of ethyl chloride are the procedures to be chosen. Cocainization is indicated in cases where it is inadvisable to use a general anesthetic, and is applicable to superficial laparotomies, to hernias, and to a great number of important operations. It is contraindicated in the case of children and of very neurotic individuals, and for complicated laparotomies.

Spinal cocainization is the method of choice for all operations upon the lower limbs, anus and rectum, and the genito-urinary organs of men and women; it is applicable to superficial laparotomies and hernias, and is indicated in operations upon the thorax

and in difficult laparotomies when the employment of a general anesthetic is dangerous.

General anesthesia should only be employed in the case of children and very neurotic individuals, and for complicated suprapelvic operations. It is the method of choice for operations of moderate or great extent in the suprapelvic regions in the case of healthy individuals; it is contraindicated where the general condition is poor.

Ether is the best general anesthetic, but, unfortunately, it is contraindicated in the case of the very old and very fat, where cough is present, and in operations upon the face and head. Chloroform is never to be employed except in those in whom the other anesthetics are not applicable.

Chaput in his article describes a number of interesting and important major abdominal operations performed under local anesthesia.

REVIEW IN PATHOLOGY.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

THE INTERCOMMUNICABILITY OF HUMAN AND BOVINE TUBERCULOSIS. M. P. Ravenel. *University of Pennsylvania Medical Bulletin*, May, 1902.

The article by Ravenel is probably the most exhaustive which has yet appeared in refutation of Koch's propositions that (1) "Human tuberculosis differs from bovine, and cannot be transmitted to cattle," and (2) "Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, one is nevertheless at liberty to say that if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of infection by the milk and flesh of tuberculous cattle, and the butter made of this milk, is hardly greater than that of hereditary transmission, and therefore do not deem it advisable to take any measures against it."

From experimentation—bacteriological, clinical, and post-mortem evidence—Ravenel draws the following conclusions:

"The evidence at hand forces us to conclude that human and bovine tuberculosis are but slightly different manifestations of one and the same disease, and that they are intercommunicable. Bovine tuberculosis is therefore a menace to human health. We are not in a position at present to define positively the extent of this danger, but that it really exists cannot be denied. In the past there has probably been a tendency to exaggeration, but however great this may have been, it does not now justify any attempt at belittling the risk, and it is folly to blind ourselves to it."

PNEUMOCOCCUS ARTHRITIS. Jas. R. Herrick. *American Journal of the Medical Sciences*, July, 1902.

Herrick concludes his article on this subject as follows:

1. It is a rare affection, found oftener in men, sparing no age.
2. It appears oftenest during or shortly after croupous pneumonia, sometimes as late as the third week after the crisis.
3. It may be primary in the joint, and severe, and even fatal, constitutional symptoms may result from the toxemia thus induced. In these cases of primary pneumococcic arthritis pulmonary localization may or may not occur.
4. Previous damage to a joint; as by trauma, rheumatism or gout, favors the localization.
5. The lesions may be limited to the synovia or may be more extensive, involving the cartilages and bones. The peri-articular structures may be involved. The subacute cases are sometimes highly destructive to the joint, and the same is true of some of the acuter ones.
6. The lesions are usually monarticular (61.5 per cent.), the larger joints being oftenest involved. The knee is the joint most frequently affected. The joints of the upper extremity are affected a little oftener than those of the lower, but the difference is insignificant.
7. The condition is recognized by the ordinary signs of an acute or chronic inflammation of a joint. Exploratory aspiration, with bacteriological examination of the fluid, is the only means of recognizing the pneumococcic nature of the inflammation. The gonorrheal arthritis and peri-arthritis have to be carefully excluded, as well as the arthralgias following pneumonia.
8. The prognosis is grave; mortality 65 per cent., largely because of the accompanying bacteriemia and involvement of other more vital parts of the body (meninges, pleura, pericardium, etc.), yet spontaneous recovery occasionally follows, even when there is a purulent exudate.
9. The cases of suppurative pneumococcic arthritis should be treated by immediate incision and drainage. Serous arthritis may often be healed by aspiration, rest, and compression.

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THE ETIOLOGY OF ACUTE DYSENTERY IN THE UNITED STATES.

Vedder and Duval. *Journal of Experimental Medicine*, February, 1902.

The problem of the authors has been to determine by comparative study whether the organisms described by the various observers (Shiga in Japan, Flexner and Strong in the Philippines, and Kruse in Germany) are not really of the same species, though possessed of individual differences and peculiarities, and to discover the cause of acute dysentery in this country, and, if possible, to identify it with the organisms of the observers mentioned.

The authors describe in detail the technique, which consisted in

examination of the stools of persons supposed to have dysentery and the intestines of several fatal cases of the disease. Agar plates were made from bouillon suspensions of the dejecta, and were incubated for twenty-four hours. The colonies after this time resembled very closely those of the colon bacillus. Inasmuch, however, as the colon bacillus produces gas in glucose agar, while the dysentery does not, simple stabs from the colonies into glucose agar readily differentiates the two.

Before the organism under consideration can be considered to be the *B. dysenteriae* it must fulfill the following requirements: (a) It must give the proper culture characteristics as shown by standard cultures of Shiga, Flexner, Kruse, etc.; (b) It must possess the right morphology as shown by the same; (c) It must give a positive agglutinative reaction with some of the known dysenteric sera.

The authors report the study of twenty-two cases, five of which occurred in Philadelphia, three from the Lancaster Company Insane Asylum; the remainder were obtained at the Springside Home, New Haven, Conn. From all these cases the *B. dysenteriae* were isolated.

With the view of determining the relationship between the various bacilli described by Shiga, Flexner, Kruse and Strong, and the authors, a series of parallel cultures of all these was made, beginning with agar plates, and carrying them through all the common culture media. While a slight difference was observed between the varieties, these were not constant enough or sufficient to distinguish one set of cultures from the other unless the name of the organism was known beforehand. Therefore the conclusion was reached that the cultural characteristics of the various forms studied are essentially alike.

As to the morphology of the organism, it is a slender rod with rounded edges. It stains with aniline dyes, but not by Gram's stains. By a special method the authors were enabled to demonstrate numerous flagella. The authors, as Kruse, could detect no motility, whereas Flexner and Shiga describe the organism as motile. Considering, however, that the organism is flagellated, it is possible that under certain conditions it does possess motility.

The study of the agglutinative reactions likewise gave interesting and positive results. The tests consisted (1) of the reaction of the patient's blood with the cultures of Shiga, Flexner, Strong, and Kruse; (2) of the reaction of the bacilli isolated by the authors with the patient's blood, and (3) the reactions toward Shiga's antidysenteric serum. In conclusion the following are the authors' opinions:

1. The several standard cultures used in this study are indistinguishable—a conclusion previously stated by Flexner.

2. The acute dysentery of the United States is due to a bacillus indistinguishable from that obtained from the epidemics of dysentery in several parts of the world.

3. The sporadic and institutional outbreaks of acute dysentery are caused by the same micro-organisms, and this organism is identical with that causing epidemic acute dysentery. (See review of Kruse's article on this point.)

4. The cause of acute dysentery, whether sporadic, institutional or epidemic, is *B. dysenteriae* Shiga.

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ON THE LIFE HISTORY OF *ACTINOMYCES ASTEROIDES*. W. G. MacCullum. *Centralbt. f. Bakt.*, May, 1902.

MacCullum gives a *résumé* of the history of this organism, and reports a case of general peritonitis of actinomyces infection in a colored child aged three years. He presents the following summary:

"The organism first described by Eppinger, and properly named actinomyces asteroides, is, so far as has been known to occur, a parasite in the human body, producing in the one case a cerebral abscess, in the other a diffuse peritonitis. It is a branched filamentous organism showing irregularities in staining such as are described for many bacteria and for other members of this group. Coccus, like vegetative forms, are produced at the ends of certain hyphae, while on inoculation in rabbits there are produced quite regularly the characteristic ray fungus forms. These are elongated cylindrical structures in this species, with lateral radiating clubs. As to their nature, no positive evidence is forthcoming, but it is thought improbable that they are merely degenerative forms. The organism is strikingly pathogenic for the ordinary laboratory animals, producing widely-disseminated focal lesions. These are abscesses beginning with a focal necrosis or degeneration of tissue, together with an extensive accumulation of leucocytes, all of which, in turn, undergo necrosis, and are walled off by a capsule of vascular granulation tissue in which giant cells often occur."

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THE PRESENT STATUS OF DYSENTERY. Kruse. *Deutsche Aerztezeitung*, 1902, No. 2.

Kruse gives a systematic *résumé* of the various forms of dysentery, which, although resembling each other clinically, have been shown in their pathological anatomy as well as etiologically. Without believing that the last word has been said as to the etiology, he divides dysentery into four groups:

I. The German epidemic dysentery, due to the bacillus which he himself has isolated (*Bac. dysenteriae Germanicae*).

II. The dysentery of the Philippines and Japan (Flexner and Shiga).

III. The atypical dysentery which occurs partly sporadic, partly in small epidemics, especially in insane asylums, and are probably due to several different types of pseudo-dysentery bacilli.

IV. The amebic dysentery, which differs from the preceding forms not only etiologically, but also anatomically.

Examining each form more closely, we find that the German epidemic form is caused by the organism discovered by Kruse in 1900, a bacillus resembling the typhoid in many respects, though non-motile. It is always found in the true dysentery stools, and is easily isolated therefrom, whereas it is never found in the dejecta of healthy people or those suffering from any other disease. As far as known the organism inhabits only the intestinal tract, this being the only source of infection. The specific blood serum causes agglutination in a dilution of 1 to 50. Pathologically, this form of dysentery is characterized by a catarrhal affection of the large intestines with the following diphtheritic exudation. Therefore the clinical symptoms are chiefly localized to the intestinal tract; numerous muco-sanguinous stools, associated with tenesmus and colic. The patients die of exhaustion in 10 per cent. of the cases, for the most part after the second week.

Clinically and anatomically, this variety corresponds to the Japanese form, the specific organism of which seems to be a variety of the former. Still some differences are to be noted in that the bacillus Japonica is described as motile and much more pathogenic.

The third form of the diseases, that associated with asylum epidemics, is also due to organisms related to Kruse's bacillus. However, they differ from it in not agglutinating with the true dysentery serum, and, contrary to Kruse's organism, form indol. Kruse has described six types of this "pseudo-dysentery bacillus." These have been found constantly in the atypical dysenteries, and under no other conditions. As has been said, the sera of these forms do not agglutinate the Kruse bacillus, and likewise the serum of the Kruse form does not agglutinate these bacilli, but among themselves they show various grades of agglutination.

In contrast to the foregoing forms of dysentery the tropical dysenteries are chiefly of amebic origin, and can be produced on animals by injection of the dejecta containing them; distinguished pathologically by the production of ulcerations in the large intestine and the formation of liver abscesses. The serum of this form does not agglutinate the Kruse bacillus.

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HEPATIC LESIONS IN INFANCY. Martha Wollstein. *American Journal of the Medical Sciences*, May, 1902.

Wollstein reports the results of 370 consecutive autopsies with reference to the pathology of the liver in infants and children. The ages of the cases ranged from two days to four years, the majority being under six months. The lesion most frequently encountered was fatty infiltration, which was apparent on gross examination in 214 cases, including 45 cases which were tuberculous as well as fatty. Of the remainder, 22 showed tubercles without fatty changes, 2 were cirrhotic, 85 deeply congested, and only 47 were normal to the naked eye.

Of the extremely fatty livers, 39 per cent. occurred in well-nourished children, and an equal number in emaciated ones.

There were 67 cases of tuberculosis. Of these, 45 had livers showing both fatty infiltration and tubercles in smaller or larger number, while in 22 no fatty changes had occurred.

In 14 cases of congenital syphilis the liver was fatty in 8. No hepatic gummata were encountered in these cases.

A study of the series shows that fatty livers occurred most often with suppurative inflammations, next in frequency with tuberculosis, pneumonia, and the intestinal diseases. The change was noted in acute rather than chronic infections.

One liver was the seat of hypertrophic cirrhosis—a female, a syphilitic, three months old. A second case, due to obstruction of the bile ducts in an infant aged three months was observed.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

Assisted by Joseph Hume, M.D.

SURGICAL INTERVENTION IN "MEDICAL NEPHRITIS." Alfred Pousson. *Annales des Malades des Organes Génito-urinaires*, May, 1902.

In this admirable article, including, as it does, a complete review of the subject, with a detailed study of the author's cases, Pousson points out the indications for the operation, the choice of operation, and its therapeutic action.

There are two classes into which the cases naturally fall—(1) acute infectious nephritis, and (2) subacute or chronic nephritis, that is to say, Bright's disease.

In the former series Pousson has collected nineteen cases, which, with the four of his own, make twenty-three cases of acute infectious nephritis subjected to operation. Of these, five died—a mortality of 21.7 per cent. Of these deaths, two can be immediately traced to the operation. The eighteen recoveries were permanent, the cases being followed for from one to four years.

The gravity of acute infectious nephritis depends upon the nature of the pathogenic organism, its mode of entrance into the kidney, the previous condition of the organ, and whether the lesion be unilateral or bilateral. Unfortunately, the infective agent and the mode of infection has not been detailed in all the reported cases, but in the majority of instances the colon bacillus was found, and the infection was carried by the blood. In such conditions medical therapeutics can be of no help, and surgical interference is indicated when the general condition of the patient becomes alarming

and the temperature is considerably elevated. If operation be long delayed at this stage, the issue can only be fatal. The great decrease in the mortality of abdominal operations for acute processes is due to early interference, and Pousson pleads that the same principle be extended to acute infections of the kidney.

But the chief objection to operation urged by the medical men in such cases is that the lesions are bilateral. Goodhart, in 130 autopsies, found unilateral kidney lesions only nineteen times; Weir, in seventy-one cases, found only nineteen in which one kidney was affected. Pousson, admitting these post-mortem records, yet argues that the double lesion is the result of terminal processes, and such figures cannot apply to primary acute infections of the kidney. Clinical experience goes to show, first, that in most cases only one kidney is affected, and second, that even with bilateral lesions, nephrotomy is a complete success.

He quotes, as upholders of these views, the authority of Isreal and Lennander. Clinically, the lesion may often be diagnosed as unilateral by spontaneous pain occurring on one side, pain elicited by pressure over the kidney, and further by the employment of the more refined means of diagnosis—cystoscopy, and in exceptional cases ureteral catheterization. The writer concludes from this study that in acute infectious nephritis if the condition of the patient steadily decreases under medical treatment, and the situation becomes critical, then is the moment for operative interference.

The statistics show that nephrotomy is far better than nephrectomy as regards the subject under discussion. Of seventeen cases subjected to nephrotomy, three cases died; of six cases of nephrectomy, two died. This treatment holds true for the ordinary acute infections of the kidney, but when the tubercle bacilli is the infecting agent, then clinical results seem to show preference for nephrectomy. Nephrectomy in other cases is useless and dangerous—useless, because nephrotomy answers all the requirements of the case; dangerous, because it leaves one kidney to carry on the work of the organism. At the time of the operation, after the kidney is opened, it should be carefully washed out with some antiseptic solution, such as boracic acid, and the pelvis packed with gauze. It is advisable to irrigate the wound, and drainage should be kept up for some time. In two cases in which the kidney wound was closed at the time of operation it was necessary to do a subsequent nephrectomy. The treatment for acute infectious nephritis may be thus summed up: Incision of the renal parenchyma, antisepsis, drainage.

[To be continued. The second paper on the surgical treatment of chronic nephritis will be awaited with much interest.—Eds.]

SOME PRACTICAL POINTS IN THE TREATMENT OF CONGENITAL TORTICOLLIS. E. N. Smith. *The Lancet*, June 28, 1902.

The writer thus summarizes his views on this subject:

1. Division of the contracted sterno-cleido-mastoid is required to cure the deformity.
2. A retention apparatus for retaining the head in the correct position is seldom necessary before or after the operation.
3. The subcutaneous method is inapplicable where the calvicular attachment of the muscle has to be divided.

The after-treatment is simple. The wound is well bandaged, and the patient's head is placed in a perfectly straight position, bent a little away from the affected side, and so retained for about ten days. The patient can then be allowed to walk about, and in three weeks should have recovered from the operation. In young children no other treatment is necessary, but when the deformity is of long duration there is often a tendency for the head to droop towards the affected side. In such cases massage and special exercise for two or three months are requisite to effect a proper cure. The tendency to deformity after operation is in a direct proportion to the age of the patient and the degree of contraction. Lateral curvature as a result of torticollis requires separate treatment, but it is seldom met with in congenital torticollis.

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HOOR-GLASS STOMACH. G. A. Moynigan. *Edinburgh Medical Journal*, June, 1902.

The writer in the last three years has operated on fourteen cases of hour-glass contraction of the stomach, of which two were due to malignant disease and twelve to the contraction following simple ulceration. In the past it has been customary to divide the disease into two varieties—congenital, and acquired. Indeed, many observers have held that the congenital form is the most common, but the writer, after extended observations and a careful study of the cases reported as congenital, concludes that the disease is never congenital, and cannot exist apart from ulceration of the stomach. Under the causation of the acquired form he describes four chief causes—(1) perigastric adhesions, (2) ulcer, with local perforation, (3) chronic ulcer, (4) malignant disease.

The diagnosis of the disease can often be made with great certainty if attention is paid to certain symptoms and signs complex. This is well illustrated in the fourteen reported cases. In the first six, only one was diagnosed; in the last eight, six were diagnosed with certainty. Two signs are of great value. One, known as Wölfer's "first sign," is obtained by washing the stomach with a known quantity of water and measuring the return flow, which will

be found to be somewhat less than that first introduced. Thus, if 30 ounces be introduced, only 24 ounces can be made to return. This depends on the fact that some of the water passed from the cardiac to the pyloric pouch, which latter is not drained by the stomach tube. Another sign of great value was first observed by the writer, who thus describes the manner in which it may be elicited: The abdomen is first carefully examined and the stomach resonance percussed. A seidlitz powder in two halves is then administered. Percussion, about thirty seconds later, reveals an enormous increase into the resonance of the upper part of the stomach, while the lower part remains unaltered. The distended cardiac segment gives the increased resonance. Sometimes the pyloric pouch can be seen to gradually fill up and become prominent in the course of a few minutes. The conditions for which an hour-glass stomach may be mistaken are pyloric stenosis and esophageal obstruction low down. But with care and thoroughness in the examination no confusion ought to exist as regards the correct diagnosis.

The treatment is entirely surgical, but the method to be pursued depends entirely upon the local conditions as seen at the time of operation. The result in the fourteen reported cases, of which two were malignant, are interesting. Of twelve due to simple ulceration, three died—one from septicemia, not due to the operation; one from pneumonia, and one from anuria on the fourteenth day. The other nine were all wonderfully improved and practically normal in every way. Of the two malignant cases, one died on the fourth day, while the other lived, but the ultimate result is not stated.

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THE FIXATION OF MOVABLE KIDNEY BY MEANS OF A STRONG CARBOLIC ACID, WITH A REPORT OF SIX CASES. T. Carwaedine.
The Lancet, June 28, 1902.

The writer advocates the following plans for nephropexy, namely: The kidney being exposed, its surface, except the hilum, is painted with strong carbolic acid. The kidney is then supported by gauze slings, as Senn advised, and the wound closed in the usual way. Granulations form, and within a few days the kidney is intimately incorporated with the surrounding tissues. No disadvantages have appeared in connection with the use of the acid, and there has been a marked absence of post-operative pyrexia. The cases have been followed for from one to four years, and no relapse or return of symptoms have been noted.

Society Reports.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

MEETING OF SECTION ON CLINICAL MEDICINE AND SURGERY, HELD APRIL
4, 1902.

Dr. Green occupied the chair in the absence of Dr. Tiffany.

Dr. R. Tunstall Taylor: "Exhibition of Cases."

The case I have here is one of unusual interest on account of its rarity. It is a case of double Pott's disease—that is, there are two definite foci of disease entirely separate and distinct, and isolated in different parts of the spine. I have gone carefully over the literature, and as far as that informs me the case is unique. This boy has disease involving the fifth, sixth, seventh and eighth dorsal vertebrae above, and the first, second and third lumbar vertebrae below.

The family history is negative from tubercular disease, except that the paternal grandmother died of phthisis.

Personal History.—The patient was not artificially fed, but nursed. This is an important point, I think, from the fact that a large number of the children that come under my care with bone disease have been fed artificially on some of the patent foods. The child walked and talked at one year. The mother thinks spinal trouble came from jumping off a straw stack in 1898. The child complained of pain in the abdomen eight months afterward. The pain was so intense that the patient could not laugh, as the mother expressed. He had the usual malaise and lordosis on standing and walking, which are not present now. There seems to be some vesical irritation, as the child rises three or four times at night.

Treatment.—The child has been placed in a recumbent position on a board covered with a blanket, except for two hours in the morning and two in the afternoon, when he wears the brace. He receives codliver oil and nux vomica, and is kept out of doors as much as possible.

The x-ray picture is especially interesting as showing clearly the two foci of disease in the fifth, sixth, seventh and eighth dorsal, and the first, second and third lumbar vertebrae. Pressure is brought to bear on the lumbar disease by two pressure plates, which are held tightly by non-elastic straps, and pressure is brought to bear on the dorsal region by a similar method. The rod and head support and take the weight of the child's head off the diseased spine. I will now take the brace off so that you can see the two foci of disease.

The next case is one which comes under the category of what was formerly known as Hay's internal derangement of the knee-joint. He included everything which disabled the knee, whether from a chronic synovitis of the knee, trauma, tuberculosis, or osteomyelitis.

This is the case of a young lady nineteen years of age, whose family history is negative. Her past history is negative, except that she had an attack of appendicitis six years ago. Her present trouble began four

years ago. On going to school one morning, on stepping from the curbstone to the pavement, she fell; the right knee gave way, and on starting to rise was unable to straighten the knee or to bear any weight upon that leg. She was carried home, and could not use her leg for four months. It gradually improved, and she was able to bear her weight upon it. The motion in the knee-joint remained permanently limited, and she could not fully extend the knee, feeling as if some foreign body was in the bone. The joint is slightly painful. The point of maximum tenderness is just under the patellar ligament. No constitutional disturbances were present. She was treated for two years for rheumatism. She did not improve under this treatment, and had no further treatment until 1901. Electricity and massage were tried for two months. The knee was made more comfortable under this treatment, but motion of the joint did not become more free. Three *x*-ray pictures were taken. The patient was operated upon under ether. An incision about 12 cm. in length was made on the inside of the joint capsule, and on opening the joint exposed a foreign body occupying a position between the condyloids. The body was found to project into the intercondyloid joint. On the inner side of the internal condyloid, after several attempts, it was found to be impossible to remove the body from the inside, so a counter incision was made on the other side. The foreign body was then grasped by long forceps. There was a small piece of bone attached by a ligamentous band to the extremity of this large osteoma. The incisions were closed by silver wire sutures and the wound dressed with silver foil and gauze. The leg was enclosed in a plaster of paris cast, and full extension is now possible for the first time for several years. There is perfect flexion, and motion is free from pain.

The next case which I wish to present is still another showing the value of the *x*-ray in diagnosis and for treatment. A man forty-three years of age had tubercular osteomyelitis of the left humeral head.

The family history is as follows: Father died of bronchial trouble at seventy-two years of age, mother of phthisis at forty-three, youngest brother of tubercular meningitis; a son has Pott's disease.

Past History.—Patient was healthy up to thirteen years ago, when he had osteomyelitis of the right femur. He was first treated for rheumatism, then for an abscess, which broke and healed. Eight years later had a sequestrotomy done. Ten years ago was struck by a man on the left shoulder, which was thought to be dislocated, and was reduced.

Present Attack.—The patient was first seen on December 31. Since December 22 the shoulder has been excessively tender at the apex. Motion is impaired, pain intense, preventing sleep, and he had been conscious of more or less discomfort since Thanksgiving Day. The right leg is three inches shorter than the left; there are two discharging sinuses. The apex of the shoulder is very tender, not red, but slightly indurated. The *x*-ray revealed the presence of button-like piece of bone the size of the middle finger separated from the head of the humerus by an inflammatory area.

The patient was operated on January 1, the day after the *x*-ray was made. The condition corresponded to the *x*-ray picture. There was a small fibroid osseous tumor, which was thoroughly curetted out. The material removed resembled caseous detritus. The wound was swabbed

out and closed with subcutaneous silver sutures. Cultures taken at the time were sterile; cover slips also were negative. On January 7 the patient was discharged with freely movable and painless shoulder.

I wish also to present several *x*-ray pictures of children with coxalgia who had combined treatment. By combined treatment I mean the operative and mechanical, as follows: The child is put to bed on a Bradford frame, traction is made in the line of the deformity until the muscular spasm subsides. The *x*-ray is then made. On account of the lumbar lordosis that occurs in hip disease with position of flexion it is impossible to get a good *x*-ray until the parallelism of the leg is restored by traction. For that reason I often put off taking the *x*-ray until the parallelism of the legs is restored. The *x*-ray having shown an area of cloudiness or, perhaps, a tubercular process, the child is prepared, etherized, and an incision made down on the intermuscular space, which is incised and the focus removed by curetting and chiselling. The capsule is thoroughly curetted. The joint is flushed with pure carbolic acid, and then alcohol and salt solution are used. This combined treatment, I feel sure, must result in a much more rapid cure than the older treatment, and is far better than excision, which checks all growth from the upper epiphysis. I use the traction treatment afterwards for the reason that at times we may weaken the neck very much, and until a certain amount of osseous repair has taken place there is danger, of course, of shortening, even without removing the epiphysis. I make this simply as a preliminary report and for record. I have a child here that has been operated upon by this method.

This child has had an anterior incision which extends from the anterior superior spine about half-way down the spine. The child came into the hospital with the following record: There was one-quarter inch real shortening, though the apparent shortening was one and one-quarter inches. The child's leg was held in a position of abduction of 5 degrees, in a position of flexion of 45 degrees, in the thighs atrophy in the diseased side amounting to one-half inch, in the calf three-quarters inch. The child had motion in absolutely no direction, and the leg was held rigid by muscular spasm.

Dr. Hugh Young: "Report on Sixty Operations for Prostatic Hypertrophy."

The history of operations for the relief of prostatic hypertrophy has been a very varied one in the last twenty years. There have been many changes, the taking up and discarding of fads and so on. So we may still consider that we are in a transitory state, and we may still feel that there is a great deal of uncertainty as to the proper method. As far back as 1873 Bottini brought out his operation, but only in the last three or four years has it come to any considerable notice. In 1886 it was demonstrated that it was possible to remove the offending portion of the prostate, and thus cure the case. The results showed such a high mortality and so few cases were operated on that in 1893 the work of White showed that castration would produce a remarkable diminution in the size of an enlarged prostate, and surgeons immediately took up the White operation, and hundreds of testicles were sacrificed to the fad. For a while it seemed that there would be the operation of choice, and one that was

perfectly satisfactory, but it seems remarkable that the medical profession should so give themselves to one belief in an operation and then go suddenly back, as they have done, upon castration. In 1897 Freudenberg again brought out the Bottini operation, and Bottini himself, working in Pavia, had continued to work by his method up to this time, and had operated upon 400 cases. It was only in 1897, when the work of Freudenberg, who took the Bottini instrument and improved it and showed the possibilities of it, that the operation has been placed upon a firm basis. The instrument which Freudenberg brought out was this one, which you all know well, consisting of an instrument with a male and female blade. It is possible with it to pass an electrically-heated knife through the prostate. The operation as advised by Bottini was first simply to have one small area which became hot on the side of the knife, but he soon saw that that was insufficient, and he brought out a knife which could be drawn through the prostate, causing a slough, which would pass away. Freudenberg materially improved Bottini's instrument, and this instrument, which is Freudenberg's patent, represents a well-made and excellent instrument in every way. Since the introduction of this instrument and the numerous papers with which Freudenberg has followed up his work the operation has been adopted all over the world. Collected reports show that 900 cases were already in the literature, and of course a great many were not reported.

Between 1896 and 1901 the prostatic operation was again revived, and numerous modifications brought out. The operation of Nichol, of Ferguson, and of dozens of other men have appeared, so that we have now before us several varieties of methods from which to choose, and one is almost greatly perplexed as to what is the best route to follow.

In order to add some small contribution I thought it might be of interest to go over the cases which I have had, and to see what failures and what successes I have had. My cases embrace prostatectomies, Bottini operations, castrations, and suprapubic operations—fourteen prostatectomies, forty-five Bottini operations, one castration, and several suprapubic operations, I do not know how many. Taking up the prostatectomies, the oldest of these was sixty-seven years of age, the youngest forty-eight. In three cases the prostate was removed through the perineum, in eleven through the suprapubic manner. I have here some few specimens. The first case I operated upon showed a tremendous intravesical hypertrophy. The whole thing was easily removed through the suprapubic wound by means of the assistance of the finger in the rectum. The technique has been described by Guiteras. An incision is made through the capsule of the prostate, then with the finger in the rectum, pushing the prostate well up, first back of the median portion of the prostate, and then from the prostatic capsule, next to the rectum and in the sides and in front. This case recovered completely.

Another case which I have here in which the prostate was removed suprapubically, showing only a slight median hypertrophy, there was a very large lateral growth, showing that it is impossible to remove the lateral as well as the median lobes through suprapubic wound. Here is a case in which there was no median hypertrophy, and two very large lateral lobes, which did not project into the bladder at all, with the posterior commissures still connecting them.

This case, which is the largest I have, was removed through the perineum, already presented mostly by rectum, and at that time I thought that the perineal was the operation for such cases. At present I think it would be much easier to remove it through the suprapubic wound.

I have here several other cases with quite a large median hypertrophy and two lateral hypertrophies all removed in one piece.

Last year there was a very extended discussion brought out by a surgeon who claimed that he removed the entire prostate. He simply enucleated the prostate. The urethra is not removed; it strips away from the prostate lobes easily and the prostatic capsule, which is dense and thick, so that it is impossible to remove the capsule itself. So that much the easier thing to do is to strip the gland out of the capsule and leave the capsule and the urethra behind. That has been done in all of my cases, in some cases, as in the case in which the prostate was removed by pulling the urethra out, without tearing the lobes apart in front or behind. Of course, the result after an operation of that sort is that the urethra is left intact in front. Behind it is loose in the cavity, so that the lower body of the urethra lies loose in the cavity, which is generally packed with gauze, and is brought out through the suprapubic wound. The anterior commissure is not generally removed.

In three cases we had to deal simply with a very small median lobe, no lateral enlargement, and a very small valve-like lobe that acted as the ball-valve to prevent urination. I simply removed those three little lobes, with complete cure of all the cases.

In the other cases the operation was to remove the entire gland, enucleating with the finger, and draining through the suprapubic wound.

As to the results: Taking these fourteen cases, I had one death. He was a patient sixty-seven years of age, and should not have been operated on. I am sure that if I had studied his case more carefully I should not have operated on him. He died about a week after the operation. He was taken with uremia, and showed double pyonephrosis of long standing, so that the operation should not be considered responsible for this death.

All of the other thirteen cases lived, except one, who died of carcinoma eighteen months after the operation. The operation at the time seemed to show that the prostate was carcinomatous. So that really we have only one death after the operation, and that was a death for which the operation was not responsible. All of the results, so far as I can ascertain—and I have heard from nearly all—are cured absolutely as to the prostatic obstruction. Most of them are able to urinate with absolute freedom, and are able to hold their urine for normal lengths of time. Two or three cases still suffer with inflammation of the bladder, and in one or two the bladder is definitely contracted. Taking the fourteen cases, the results have really been splendid. Nothing better could be asked for than we have had.

Taking the Bottini cases, forty-five in number, I have had three deaths. Of these forty-five cases eighteen were over seventy years of age and three were over eighty years of age, and among these eighteen cases there was not a death. Of the three deaths in the whole series, one of them, I think, I was responsible for. I made an incision too long. The knife

penetrated, a very small periprostatic abscess formed, and the patient died. The incision in that case was made $4\frac{1}{2}$ cm. long, an incision shorter than is advised by several well-known surgeons. I think it is really a very dangerous incision to make, and I shall certainly never do so again.

The other two fatal cases died four weeks after the operation. One of them died of uremia, and the other during the very hot spell last summer with a heat stroke. So that I do not think the operation was responsible for either of the deaths. Another case had unquestionably pus kidneys, and the operation could hardly be considered the cause. Of course, these things have to be taken into consideration, and a great many of these cases when they come to operation come with infected kidneys, and the operator has to consider the dangers of suppression of urine, uremia, etc.. Thirteen of these forty-five cases had led catheter lives. Of these thirteen only one is at present using a catheter, and he uses it only occasionally. He is eighty-three years of age, and I wished to do a second Bottini operation, but he seems to get along so well with the catheter that I am afraid to operate. I have two cases in men who have used catheters for seven years. Both of them have been absolutely relieved of the use of the catheter.

Another case shows that if you remove the obstruction the bladder can regain its tone even after very great distension. After about ten days without voiding any urine the patient came with the bladder distended up into close contact with the diaphragm, and we were astonished when we got 4500 c. c. out of his bladder. I thought the bladder was absolutely gone, but after two months of catheterization, during which time his bladder was frequently irrigated, and three weeks after a Bottini operation, he is able to void urine, and the bladder capacity has dropped down to 500 c. c. His residuary urine this afternoon was 80 c. c. I think this is a star case showing the power of a bladder which had received pretty rough treatment to regain its tone.

Some of these cases also illustrate what can be done for these very desperate cases. One was a man of seventy-seven years of age, who was in a condition of uremic coma. The bladder was distended, holding about 1700 c. c. He was catheterized; a permanent catheter was put in. He had cystitis at the time. We bled him frequently, some 2000 or 3000 c. c., and after that we used salt by rectum, subcutaneously, by mouth, and in about four weeks he got over his coma and became ordinarily crazy. At the end of two more weeks he became normal. We did a Bottini operation, and he is now perfectly well.

Many of these prostatic cases defied all the rules. One case was a man who on rectal examination had no prostatic enlargement, who at the same time had retention of the urine, coupled with a bladder holding about 800 c. c., and who required continual catheterization. The cystoscope was introduced, and showed absolutely no enlargement of the prostatic lobes. With the finger in the rectum and an instrument in the urethra there was no increase in the amount of tissue between the two. So that by rectal examination, by urethral length, by cystoscopic examination, and by placing the finger in the rectum and the instrument in the urethra he had no prostatic obstruction. We did a suprapubic operation. I inserted my finger into the prostatic orifice, and found that the orifice of the prostate

gripped my finger as tightly as a strong cord. There was fibrous hyperplasia of the prostate, which acted as an obstruction. On doing a Bottini operation the lobes of the prostate immediately cracked open as if they had been under very great tension, and he had immediate relief. When he came in he had complete retention. He now has no residuary urine, and is perfectly well. Since his case I have seen a number of cases of these small obstructing prostates, which may better be called the small sclerotic prostate. They are cases in which the cystoscope shows nothing, and yet there is definite complete obstruction. Castration has absolutely no effect upon them, and it is impossible to do prostatectomy, because there is no gland tissue to enucleate.

As to the results of these forty-five Bottini cases, as I said before, I have had three deaths. One of them I am responsible for; two I think the operation should hardly be held responsible for. So that there really should have been no mortality. All of the forty-two cases have been relieved of their prostatic obstruction, and some of them with very great prostatic hypertrophies have been completely relieved. In some cases a residuary of only 40 to 50 c. c. remains, and one very much hypertrophied case has a residual of about 120 c. c. He has perfect powers of urination, and is otherwise perfectly well. So that as to the relief of obstruction and return of voluntary micturition there is no question that by the Bottini operation one can be perfectly relieved of the obstruction and complete restoration of the power of micturition brought about. The principal after-trouble appears to be the persistence of a cystitis, the tendency to have irritable bladder, and also a bladder of reduced capacity, while contracture of the bladder is present in a certain proportion of all my cases. I do not think it is quite as common after prostatectomy, for that does not leave a chance for decomposition of the urine. As far as cystitis is concerned, prostatectomy seems to be better. That is one of the defects, I think, of the Bottini operation. But it has a great advantage in that it can be done on cases which cannot possibly be done by the prostatectomy method. The only case in which I have performed castration was in a man seventy-six years of age. He was a very great sufferer from pain in the rectum and from pain in his sciatic nerves. He also had hemorrhoids, induced by very enlarged prostate, which bulged far into the rectum and acted as an obstruction to evacuation of the bowels, which led to hemorrhoids. He had, on the contrary, no obstruction to urination. He had only a residual of 75 c. c., and voided urine every two or three hours. He was very feeble, and prostatic operation would certainly have killed him. Bottini operation was out of the question, because the pressure was upon the rectum and pelvic nerves, and the only thing that offered any relief was castration, and accordingly I performed it, and in a very few days he began to get good results. His prostate has rapidly atrophied, and he writes me that he is perfectly well.

The suprapubic cystotomy cases were those done mostly for stone, and I did not consider that this operation is to be undertaken for the relief of prostatic obstruction. If the patient needs drainage, it can be done by means of a permanent catheter or by very frequent catheterization, and after the patient is strong enough to stand anything a much simpler thing to do is a Bottini operation.

It is hard at the present time to say what are the limitations of these two operations. If you get a patient in good surgical condition, a man who can stand severe surgical operation, if the prostate is of the large, rather soft, easily enucleable sort or of the adeno-myomatous type, prostatectomy is probably the best, because it is radical. The great majority of cases we get are in men much older than could be considered safe surgical risks, men that are very apt to have sclerotic kidneys. For those cases certainly the Bottini operation is the operation. Between those two there is a wide range of cases in which it is very hard to say what is the proper thing to do. We will have to rely on our experience and the careful study of our cases. Careful cystoscopic examination should be made to determine the size of the prostate, the character of the lobes, their direction, etc., and also very careful study should be made of urine for urea and for other elements of importance. It is only by such careful studies and by the collection of a large series of cases that finally the question can be decided as to when to use the prostatectomy and when to use the Bottini operation. Both of them have certainly proved to be operations of great value.

Dr. J. D. Blake: When we take into consideration that all of these patients that we have been called to operate upon in performing all of the operations of which Dr. Young has spoken, we must take into consideration not only that they are at a very advanced age, but they have come to that condition which requires operation after a long and persistent and more or less exhausting suffering, the result of all of which is that this entire class of cases comes to the surgeon under the most adverse circumstances, and for that reason Dr. Young is to be congratulated upon the results that he has had in the treatment of these most difficult and serious cases. Castration has been dropped, as Dr. Young has said, very suddenly, and, I think, very properly, so far as most cases are concerned. I believe there are a class of cases, as Dr. Young has said, where the lateral lobes are involved and where the pressure causes a great deal of trouble, in which castration has certainly done wonders in relief. In the case of which Dr. Young spoke, which we saw together, the lateral lobes after castration had been absorbed, and upon opening the bladder we found just the middle lobe projecting up to such an extent that it interfered with the free passage of the water. His case of enormous vesical distension is quite unique, so far as I know. I have often seen it come up in the neighborhood of the umbilicus and present all the symptoms of an eight months' pregnancy, but I have never seen any danger of death from dyspnea.

I want to congratulate him also upon his modification of Bottini. It seems to me he has made a valuable contribution. I have no doubt that that instrument is probably more far-reaching and more satisfactory than even he contemplates at the present time. Certainly the change in the curve is a valuable addition to the instrument.

Dr. Samuel Theobald: "Observations upon Recent Methods of Treating Corneal Ulcers, with Especial Reference to the Use of Carbolic Acid."

The general and more definite recognition of the important rôle which micro-organisms play in the etiology of corneal ulcers has led, as might be supposed, to decided changes in the therapeutic measures employed

in the treatment of this often troublesome condition and to modified views as to the beneficial action of some of the older and well-tried remedies.

In the text-books upon eye diseases of twenty years ago we find but scant reference to bacteria as factors in the causation of conjunctival or corneal inflammations, and practically nothing as to the employment of bactericidal agents, as such, in their treatment. Then, as now, nitrate of silver was used in purulent conjunctivitis, and at Gavet's and Fuchs' suggestion the actual cautery was beginning to be employed in the more dangerous types of corneal ulcers; but the good effects of the former were described to its "astringent and caustic" action, and of the latter, by one authority at least, to its supposed influence in reducing intraocular tension.

At the present day, while it is conceded that the efficaciousness of nitrate of silver is in part due to its direct action upon the conjunctival inflammation, it is in larger measure attributed to its bactericidal properties, and especially to its power of penetration, which enables it to reach and destroy the gonococci that have found lodgment beneath the superficial layers of the conjunctival epithelium, as well as those that are free in the conjunctival sac; and in like manner, as to the actual cautery in the treatment of corneal ulcers, its good effects are now ascribed mainly to its powerful antiseptic action, as was first pointed out by Sattler.

At the period referred to, if, in spite of atropia, warm fomentations and a pressure bandage, a corneal ulcer continued to progress and threatened the integrity of the eye, reliance was placed chiefly in paracentesis of the anterior chamber, in incision through the base of the ulcer (Saemisch), or in the performance of an iridectomy. Now, when a threatening ulcer of the cornea is encountered, one asks what exceptionally virulent micro-organism is causing the unfavorable condition, and by what means it can be eradicated and the ulcer rendered aseptic; or, on the other hand, if the micro-organism be not of exceptional virulence, what has lowered the resisting power of the corneal cells, or of the phagocytes whose function it is to assist in their defense, and how it can be brought up to its normal standard. So, while such drugs as atrophine, eserine, and the more recently introduced holocaine are still employed in the treatment of ulcerative process of the cornea, and are held to be of undoubted value, germicidal agents, such as the actual cautery, carbolic acid, tincture of iodine, formalin, chlorine water, iodoform and boric acid, and the mechanical removal of the bacteria and the corneal tissue which they have invaded by curetting, are regarded as of the first importance.

And this brings me to speak of the good results which, in my own hands and in the hands of several of my colleagues, have been obtained from the use of carbolic acid in the treatment of threatening ulcers of the cornea—the application of the pure acid to the ulcer for its germicidal effect and, in large measure, as a substitute for the actual cautery. It is, perhaps, hardly necessary for me to say that this use of carbolic acid is not novel, and that I am fully aware that others have employed it in the same manner and with favorable results.

That the application of carbolic acid to a corneal ulcer is a simpler

and safer procedure than its cauterization by the galvano or thermo cautery goes without saying. But what of its efficacy? I am not prepared to assert that it will accomplish in every case what the cautery will do, or that it should wholly supplant the latter, but I believe that in many cases in which it is usual to employ the cautery, carbolic acid may be substituted with advantage, and that in most cases it is judicious, at least, to make trial of it before resorting to thermal cauterization.

In applying pure carbolic acid to the cornea it is, of course, important to limit its action carefully to the infected part. To facilitate this the eye should be anesthetized by cocaine, which renders the procedure entirely painless. I have found it convenient to make the application by means of a pointed toothpick about the tip of which a very small quantity of absorbent cotton has been wound. If much cotton is used an excess of the acid will be taken up, and it will be almost impossible to prevent its spreading over healthy portions of the cornea. To the surface of the ulcer the acid should be thoroughly applied by a gentle rubbing movement, which is in effect a sort of curettage. When the ulcer is foul and its walls are lined by infected and necrotic material, this should be removed with a small curette before the acid is applied. When, however, this condition is less pronounced, aided by the loosening action of the cocaine, the cleaning of the ulcer may be effected satisfactorily by means of the toothpick armed with a wisp of dry cotton. After the acid has been allowed to remain in contact with the ulcer for a few moments, the lids meantime having been held apart, its further action should be arrested by flushing the cornea with sterile water, normal salt solution, or a saturated solution of boric acid. After the effect of the cocaine has passed off some smarting or discomfort may be felt in the eye, but usually this is not pronounced.

The effect of carbolic acid upon the surface of the cornea is rather startling, for it attacks the epithelium energetically, and in an instant renders it opaque, causing it to assume a milky appearance. Bowman's membrane, it would seem, is much more capable of resisting its caustic action, for the superficial opacity which it produces quickly disappears.

It seems hardly necessary, and yet it is, perhaps, best, to say that the employment of carbolic acid in the manner described is not to be regarded as part of the routine treatment of corneal ulcers. On the contrary, the cases in which it is called for are distinctly the exception, and not the rule. When the ulcer is the product of infection with one of the less virulent bacteria, such as the staphylococcus aureus, as is commonly the case in phlyctenular keratitis, the yellow oxide of mercury, supplemented, perhaps, by boric acid, commonly meets the condition most satisfactorily. It is the dangerous ulcers—the serpiginous ulcer, the ulcer complicated by hypopyon—which are commonly due to the presence of the pneumococcus, and less frequently to the more virulent streptococcus, that call for the energetic germicidal action of carbolic acid, and in which its good effects are manifested.

I shall not prolong this paper with detailed accounts of cases in which the efficacy of carbolic acid has been shown, but in justification of the

views I have expressed as to its value will simply mention that I have employed it with gratifying results in hypopyon ulcers (in the early stages especially), in suppurating ulcers of traumatic origin following oyster-shell injuries, etc., and in dentritic keratitis, and that recently one of my colleagues, Dr. James Bordley, applied it to a threatening corneal ulcer complicating gonorrheal conjunctivitis, and which, it seems probable, was due to a secondary infection, with the result that the rapid progress of the ulcer was at once arrested and the process of repair quickly established.

In conclusion, and to prevent possible misapprehension, I wish to add that while in what has gone before I have dwelt upon the importance of using energetic antiseptic agents in the treatment of the more dangerous types of corneal ulcers, I am far from holding that they should be our sole reliance, that they should be employed to the exclusion of other remedies. Atropine, holocaine, and, exceptionally, eserine and opium, as a lotion to be applied over the closed lids, are as useful today in controlling suppurative and ulcerative processes of the cornea as they ever were, and the same may be said of the liberal administration of quinine, which unquestionably augments the resisting power of the cornea, and so may determine, as we would wish it, the outcome of the combat between the invading bacteria and the phagocytes which hasten, literally as well as metaphorically, to their circumvention.

Dr. Harlan: I had a case of a woman with a very deep ulcer of the lower border, with intense pain. I applied carbolic acid, and a few days later wanted to use the cautery, but our handle was out of order, and I could not use the cautery. I tried carbolic acid again quite thoroughly, and the pain continued in exactly the same way. She came to the hospital the next day, and a single application of the cautery relieved it entirely. She stayed at the hospital about a week, went home, and returned with a similar ulcer on the other eye. I did not try the carbolic acid, but tried the cautery, and it relieved it entirely. Of the two I think I have obtained better results from the use of tincture of iodine in corneal ulceration, although I have found the carbolic acid very satisfactory a good many times.

Dr. Woods: The warning note that Dr. Theobald sounded in the last part of his paper against the promiscuous use of cautery is to be most thoroughly approved. About eight and one-half years ago, when the cauterizing method of treating these troubles came up, I saw examples that I really believed were harmed by too vigorous cauterization. When dealing with a progressive corneal ulcer I have found myself of late years deciding the question of using a cauterizing agent largely upon this—whether the ulcer was deep and perforating, or if it were a purulent ulceration, or if it were one of the grayish ulcerations which commence at any point in the cornea, pursuing its course without producing any distinct purulent slough. Carbolic acid in the last class of cases, I think, is extremely efficacious. In the perforating purulent ulcers carbolic acid, I am sorry to say, has failed me. As for the actual cautery, it is an agent which of late years I have been confining almost altogether to the purulent ulcerations. In my judgment, the first thing to do is to decide whether you want a cauterizing agent at all, and it should be used when the ulcer is indolent, and you cannot stir it up

with any of the ordinary means. If it is progressive, or if the case is not dendritic, carbolic acid is certainly effective. In at least two cases in the hospital during the past year I have seen carbolic acid fail in a purulent infiltration of the cornea and the ulceration stopped by the use of the actual cautery.

Dr. Randolph: I have been making applications of carbolic acid, and I use a strong magnifying glass. I usually apply the carbolic acid on the end of a toothpick around the end of which has been wrapped a small piece of cotton. One can see as he approaches the ulcer the necrotic tissue curl up and disappear, and can best, I think, in that way, avoid touching the healthy tissue. Three years ago I reported a case in which I used trichloroacetic acid. It is applied in much the same way as carbolic acid. I have only used it in three cases, but have gotten admirable results.

Dr. Harry Friedenwald: I agree thoroughly with what Dr. Woods has said in regard to distinguishing between different forms of ulcers. Everyone who has had ulcers of the cornea to treat knows that he can recognize at first sight whether it is a superficial one, or one that will spread, or one of the infected kind which will perforate and cause great damage. I would like to remind Dr. Woods that I brought out that point before one of the local societies when I spoke of the use of iodine some few years ago. The important point in the use of iodine is to determine what cases you are going to use it on. I found that it is only on those superficial spreading ulcers and on the marginal ulcers that this treatment is efficacious, and in such cases efficacious almost without exception. I believe it would be just as useless to use the carbolic acid as I know it is useless to use the iodine in the infected ulceration. In the last few months I have seen two or three cases in which I was surprised by the almost marvelous action of chlorine water.

Dr. Gibbons: Among other remedies which have been mentioned on the subject of conjunctival infection is salt solution. Four or five years ago I first noticed, in reading one of the journals, reference to this method of treatment. The authors spoke of it as lymphatic flushing of the eyeball. It is very easily applied with an ordinary hypodermic needle or syringe. The fluid is just squirted beneath the conjunctiva of the eyeball above the cornea as the patient looks down. The lids are simply held up with the thumb, just as it is pushed under the skin for giving a hypodermic injection. That treatment is recommended for a great many eye diseases—for iritis, for intraocular disorders, etc.

Dr. Theobald: I only have a word or two to say in regard to Dr. Woods' experience in those suppurating cases. In cases in which there is no suppuration I have gotten good results from carbolic acid.

With regard to Dr. Bond's point, he will, perhaps, recall that I mentioned in my paper that I not only applied the carbolic acid, but did more or less curetting, which loosens the corneal epithelium and tissue. If the infiltration is less marked, we can clean out the ulcer very nicely simply by a light dry cotton wrapped around the probe. The use of alcohol in the eye is, of course, somewhat objectionable, and it is almost as severe in its action as carbolic acid. I have an eye-dropper, and with one of the sterile solutions I simply wash the eye out, and that seems to arrest the process.

Book Reviews.

ATLAS AND EPITOME OF OTOTOLOGY. By Gustav Bruhl, M.D., of Berlin, with the collaboration of Prof. Adam Politzer of Vienna. Edited, with additions, by S. MacCuen Smith, M.D., Clinical Professor of Otology, Jefferson Medical College, Philadelphia. With 244 colored figures on 39 lithographic plates, 99 text illustrations, and 292 pages of text. Cloth, \$3 net. Philadelphia and London: W. B. Saunders & Co. 1902.

It has already been our privilege to comment favorably upon two of the atlases published in this series of Medical Hand Atlases by Saunders. We have waited with much interest the advent of this new one dealing with the subject of otology, inasmuch as it is probably the first work of the kind to appear in English. The excellent standard established in the first of this series has been maintained throughout, and the volume at present under review is in every respect first-class. The anatomy of the temporal bone, the relations of the tympanic cavity to its important neighboring structures, the topographical features of special interest to the surgeon, and the more important operations upon the ear are all illustrated in the clearest possible manner. A special feature, and one of great practical importance, is the number of plates devoted to a demonstration of the pathological changes to be noted in the several diseases of the ear, special attention being devoted, of course, to the suppurative and catarrhal affections of the middle ear.

The text, which comprises about one-half of the book, constitutes a good practical compendium of otology. On some minor points we might be inclined to differ with the author, but this is not the place for a consideration of such details. In the main we agree with the teaching found here, and would call special attention to the value of those chapters dealing with suppurative otitis and its complications.

We heartily congratulate the author and the publishers on the excellence of this book, and predict for it a hearty welcome by both teachers and students.

H. O. R.

CLINICAL PATHOLOGY OF THE BLOOD. By James Ewing, A.M., M.D. Philadelphia and New York: Lea Bros. & Co.

After using this book for the past six months, we can thoroughly recommend it. It differs essentially from Cabot's book in that the theoretical side of the subject is carefully considered, and this, and the fact that a most careful review of the literature of the subject is given, markedly increases the value of the work, to our minds.

The only real criticism we have to make is that the illustrations, it seems to us, are much too diagrammatic, and the blood cells themselves are drawn on much too large a scale.

Of especial interest may be mentioned Ewing's most careful studies upon the morphology of the malarial parasite.

B.

NOTHNAGEL'S ENCYCLOPEDIA OF PRACTICAL MEDICINE: Variola, Vaccination, Varicella, Cholera, Erysipelas, Whooping Cough, Hay Fever. By H. Immermann, Th. von Jurgensen, C. Liebermeister, H. Lenhartz, G. Sticker. Edited, with additions, by John W. Moore, M.D., F.R.C.P., Professor of the Practice of Medicine in the Royal College of Surgeons of Ireland. Authorized translation from the German, under the editorial supervision of Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders & Co. 1902.

This is the second volume of the English and American edition of Nothnagel's great series, and it fully realizes the promise of its predecessor.

More than one-third of this volume is devoted to smallpox and vaccination, and to English and American physicians a good translation of Immermann's exhaustive treatise will be a very welcome offering. There are 139 pages on smallpox, forming a very complete monograph. The case for vaccination is not better presented anywhere in the literature than by Immermann. In the history of the subject the argument is broadly and strikingly sketched, and in the section on "General Results of Vaccination and Revaccination" a great mass of statistical evidence is presented in an orderly and most convincing manner. The particular advantage of Germany over all other nations in respect to immunity against smallpox is well known, and the figures here given down to about 1893 furnishing the best statistical statement on the subject to be found in the English language.

"Varicella" is treated by Theodor von Jurgensen in a short monograph.

"Asiatic Cholera and Cholera Nostras" occupy about 100 pages, with an extensive bibliography. This article is by C. Liebermeister.

There are 100 pages on "Erysipelas" by Herman Lenhartz, and the remaining 130 pages of the volume are taken up by George Sticker on "Whooping Cough and Hay Fever."

The editorial work has been entrusted to excellent hands—John W. Moore of the Royal College of Surgeons of Ireland.

MATERIA MEDICA, PHARMACY, PHARMACOLOGY, AND THERAPEUTICS. By W. Hale White, M.D., F.R.C.P., Physician to and Lecturer on Medicine at Guy's Hospital, London; author of a text-book of general therapeutics. Edited by Reynold W. Wilcox, M.A., M.D., LL.D., Professor of Medicine and Therapeutics at the New York Post-Graduate Medical School, and Attending Physician to the Hospital; Visiting Physician to St. Mark's Hospital; President of the American Therapeutic Society; Fellow of the American Academy of Medicine, etc. Fifth American edition, thoroughly revised. Price \$3 net. Philadelphia: P. Blakiston's Son & Co. 1901.

All books of this nature have to contend with many difficulties, and have to bear the onus of many sins, both of omission and commission, but it seems to us that White's book, which we have known and used for years, is a very valuable reference text-book both for the student and for the practitioner.

We are all yearning for that therapeutic millennium, when reason will

supersede the empiricism, and when "every flower that in the garden grows" will not be ruthlessly plucked and used for its so-called value.

The perusal of books upon *materia medica* makes us feel that we are overwhelmed by "*un embarras de pauvresse*;" but drugs, in our present state of knowledge, must be used, although their use is so often abused that we often fain must cry, "Lord, no more!"

The millennium is not in sight, and until it comes we can recommend White's book as less unsatisfactory than most books upon the subject. B.

SEXUAL DISORDERS IN THE MALE AND FEMALE. By Robert W. Taylor, A.M., M.D. Second edition. Philadelphia and New York: Lea Bros. & Co.

This is perhaps one of the best books on the subject for the student of medicine, and many chapters will prove exceedingly interesting to practitioners. The chapters on various forms of sexual impotence and disease of the prostate and seminal vesicles are especially interesting, and present an epitome of the latest research work on the microscopic findings as regards the prostatic and vesicular secretions. This at the present time is of considerable interest, owing to its bearing on sterility in the male, which is now amenable to surgical treatment—resection of the vas and anastomosis with the globus major. A great deal of stress is laid on the diagnosis and treatment of the various chronic disorders affecting the prostate and vesicles, though it is to be regretted that the author, with his large experience, has not given a more detailed account of the prognosis and results of treatment in the obscure forms of the disease affecting the genital tract.

The book is attractively bound and well illustrated throughout, the pictures of the microscopic appearance of the secretions of the genital tract being of great assistance to one who is studying them for the first time. In the section of the book dealing with diseases of women much stress is laid on the pathological conditions which lead to masturbation in the female, and its attendant results. Unfortunately, the author gives very few references to the bibliography of the subject, and alludes but little to co-workers in the subject. Y.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. For Practitioners and Students. A Complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the kindred branches, including much collateral information of an encyclopedic character, together with new and elaborate tables of Arteries, Muscles, Nerves, Veins, etc.; of Bacilli, Bacteria, Micrococci, Streptococci, Eponymic Tables of Diseases, Operations, Signs and Symptoms, Stains, Tests, Methods of Treatment, etc. By W. A. Newman Dorland, A.M., M.D., Editor of the "American Pocket Medical Dictionary." Second edition, revised. Handsome large octavo, nearly 800 pages, bound in full flexible leather. Price \$4.50 net. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co. 1901.

I suppose this book will appear in a new edition every year; so the striking success of the first edition seems to promise. It is from every point of view an admirable book. Both author and maker have succeeded in meeting the

requirements of a convenient and comprehensive dictionary which can be kept fully abreast of the times without growing bulky. It will never need a new dress, for its present appearance is wholly satisfying. It is difficult to see how it can be surpassed as a desk companion.

ABBOTT'S BACTERIOLOGY. A Practical Manual of Bacteriology for Students and Physicians. By A. C. Abbott, M.D., Professor of Hygiene, University of Pennsylvania. New (sixth) edition, revised and enlarged. In one 12mo volume of 636 pages, with 111 illustrations, of which 26 are colored. Cloth, \$2.75 net. Philadelphia and New York: Lea Bros. & Co.

In no branch of medicine, perhaps, are more rapid advances being made than in bacteriology and in the application of the discoveries resulting therefrom to the diagnosis, prognosis, and therapy of disease. The work before us shows the progress being made along these lines. In the preface to the sixth edition the author calls attention to the fruitful work in bacteriology since the previous edition of his book appeared.

The chapter on suppurative and inflammatory conditions has been enlarged with a description of the causative agent of epidemic cerebro-spinal meningitis; the recent work on dysentery is fully discussed, and the comments upon immunity have been revised to conform with the recent views of Ehrlich, Morgenroth, Buchner, and others.

We can merely repeat what we have said of the previous editions—that we have found it admirably suited for beginners in bacteriology. The book serves as a guide for laboratory work. The explanation of the technique, as well as the illustrations of some technical details, makes it readily understood by the novice. We congratulate the author on the appearance of six editions in such a comparatively short space of time. H.

ORAL SEPSIS AS A CAUSE OF SEPTIC GASTRITIS, TOXIC NEURITIS, AND OTHER SEPTIC CONDITIONS. By William Hunter, M.D., F.R.C.P. London: Cassell & Co.; Baltimore: Medical & Standard Book Co. 1901.

This little book on oral sepsis and its effects is a reprint of an article which appeared in *The Practitioner* of December, 1900. It is a record of Hunter's personal experience, and is published in separate form in the hope that it may serve to draw "additional attention to a source of disease extremely prevalent and most egregiously overlooked." B.

HOW TO COOK FOR THE SICK AND CONVALESCENT. Arranged for the Physician, Trained Nurse and Home Use. By Helena V. Sachse. Philadelphia: J. B. Lippincott Company. 1901.

This little book of 200 pages contains, besides a great many excellent formulas, precise and simple directions for the correct cooking and delicate serving of food. Its title would lead one to expect more about methods than about materials, and adaptability to the needs of the delicate rather than of the strong. In spite of its title, however, the book ought to get into the healthiest homes.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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THOMAS R. BROWN, M.D.
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HUGH H. YOUNG, M.D.
JOSE L. HIRSH, M.D.

BALTIMORE, AUGUST, 1902.

CHICAGO STATISTICS.

THE latest bid for popular applause on the part of the great city of Chicago is found in a bulletin of the Health Department, and consists in an attempted analysis of the mortuary records for thirty years, in order to obtain comparative estimates of the average duration of life in that city at the beginning and end of that period. The announcement is gravely made that against an average age of 13.9 years among the decedents of 1869, the decedents of the year 1900 attained an average age of 29.4 years. The time spent in getting these averages cost more and the results are worth less than the paper on which they are printed. We should not waste our own lead-pencil in criticising the mere extravagance of this arithmetic, but an inch of graphite is cheerfully invested to puncture the comical bubble blown by the Health Department out of such suds.

We are asked to believe, and the secular and medical press foster the delusion, that these figures indicate an increased duration of life in Chicago in the ratio of 29.4 to 13.9, or that the expectancy of life has in thirty years more than doubled. What official in Chicago is snickering in his sleeve at the gullible public? Such a performance on the part of a registration officer must be either a fraud or a folly. Similar absurdities are perpetrated elsewhere, but they are, as a rule, confined to the teething period of young registrars. Surely there must be in Chicago some man with a head for figures who will guy the squint out of this cipherer. A feeble grasp of the rudiments of vital statistics would suffice.

The figures simply mean that in the period from 1869 to 1900 the population of Chicago was so affected by several known and some unknown factors that all the crude ratios derivable from the statistics were more or less disturbed, and particularly that the sum of the ages of the decedents of the respective years divided by the number of decedents gave quotients as far apart as 13.9 and 29.4. The sums of the ages of those who had a tooth pulled in each year divided by their respective numbers would have yielded as

definite information concerning the average duration of life. Even in old and stable communities the crude ratios are subject to several corrections, and in Chicago the assumption that other things were equal is particularly futile.

There were, in fact, 6000 deaths in 1869 whose average age was fourteen years. There were also 6000 persons whose hats blew off, and the sum of the ages of the de-hatted was 84,000 years, so that the average age of the de-hatted was fourteen years. Six thousand hats blew off in 1900 also, and the sum of the ages of the de-hatted was 180,000, so that the average age was thirty. Wind and other things being equal, these figures would indicate that the index of hat-adhesion rose from fourteen to thirty, provided that the ages fourteen and thirty divide the two populations into comparable groups. But they do not. The age constitution of Chicago in 1896 was such that at fourteen years the population is divided into two groups, of which the older is twice the numerical size of the younger, and among the de-hatted, whatever the age distribution of either group, the sum of all their ages must be 84,000 years. The group under fourteen contains 2000 persons whose average age cannot exceed twelve, unless the group over fourteen, containing 4000, has an average age less than fifteen. Nor can the average age of the older group exceed twenty, unless that of the younger falls below two.

Dividing the people at the age of thirty, we should get five individuals below that age for every three above it. Here, then, we have 3750 de-hatted persons under thirty, and 2250 persons above that age, and the sum of their ages must always be 180,000 years. In the older of these groups the average age cannot fall below thirty-eight and one-third years, unless the average age of the younger group exceeds twenty-five. Nor can the older group have an average age exceeding seventy-one and two-thirds, unless that of the younger group falls below five years.

Applying the correction for the two dividing lines, fourteen and thirty, we find that in 1869 a youngster's hat might blow off at any age under fourteen, but the old men's hats blew off at an average age of less than twenty-one, while in 1900 the period of senile de-hatment lay between thirty-eight and one-third and seventy-one and two-thirds years.

If the age distribution remained fairly constant from 1869 to 1900, one could derive from these data the average age of the surviving hatted, together with the de-hatment rate and the wind velocity. But the age distribution was not at all constant, as we all know without resort to figures. We have employed here the age distribution of 1896. In the early years, by reason of migrating population, the age distribution was very different from that of the later years. Turning to the 1869 table giving the average age of those who screamed at a mouse, one is reminded that sex has an important bearing upon the hat statistics, and a more important influence, possibly,

upon the birth-rate. Sex distribution affects the age constitution and the average age at death both directly and through the birth-rate. A pretty large correction should be applied to the statistics of 1869 on this account.

There are, besides these five sources of error, others as unknown to us as to the Chicago sharp. The pitiful residue of his statistics and of our own is that in Chicago in 1869 a man of forty was an old fellow, while in 1900 men above sixty were counted by tens of thousands.

There was once a mathematician who constructed a life-table which seemed so very well made that his government sold annuities upon it. When the government had lost \$10,000,000 in the annuity business an explanation was demanded of the mathematician, who investigated, and, being an honest man, confessed that the Baptists in Northampton during the period from which his data were derived were more numerous than he supposed, and the baby Baptists had been left out of the birth-rate, so that he figured a mean duration of life of twenty-four years, when it was really thirty years. This neglected item explained the loss of \$10,000,000.

The moral of it all is this: Reckon upon all the causes or combinations of causes apparently leading to any result. Don't compare data which have nothing in common.

Statistics are in the subjunctive mood of mathematics.

KING EDWARD'S TUESDAYS.

IN the *Lancet* for July 5 is a list of important events in the life of King Edward VII which are said to have all happened upon Tuesday. On Tuesday, November 9, 1841, he was born; on Tuesday, January 25, 1842, he was baptized; on Tuesday, March 10, 1863, he was married; on Tuesday, December 8, 1863, he was made a member of the Privy Council; on Tuesday, November 21, 1871, it was announced that he had typhoid fever; on Tuesday, February 27, 1872, he attended the public thanksgiving service for his recovery; on Tuesday, January 22, 1901, he succeeded to the throne; on Tuesday, January 29, 1901, the royal standard was hoisted for the first time at Marlborough House; on Tuesday, June 24, 1902, he was operated upon for appendicitis. By way of exception it is observed that the King broke his patella on Monday, July 18, 1898. These nine dates include, perhaps, the best and the worst of His Majesty's nine years of Tuesdays. It would be interesting to know the date of the first great dinner after which the then Royal Highness had cigarettes served instead of wine. That day ranked about as high as tenth among 3000 Tuesdays.

May good luck keep step with the King's own watch, and misfortune travel with the arctic sun.

Medical Items.

DR. J. C. BATES of Norfolk, Va., was shot and killed on July 10 by a negro patient who was delirious.

A BILL to regulate the sale of sera, antitoxins and vaccines in the District of Columbia passed the Senate on June 30.

AN examination of midwives for license to practice was held in New Jersey in June. Of twelve candidates, seven failed.

DR. J. W. WASHBOURN died June 20 in London, aged thirty-eight years. This closes untimely a very bright career. The cause of death was tuberculosis.

THE State of Georgia has chosen to commemorate in Statuary Hall at Washington Dr. Crawford W. Long, who discovered the anesthetic properties of ether.

DR. JACQUES LOEB has been called from the University of Chicago to San Francisco to take charge of the Colleges of Medicine and Dentistry of the University of California.

WOMEN are to be admitted in future to Rush Medical College on the same footing with men. This will provide for more of the fair left-overs of the closed Northwestern.

NEW YORK CITY is preparing to build a very large floating bathhouse at the foot of East Twenty-third street. It will cost \$200,000, and will furnish accommodations for 18,000 people.

THE governor has appointed the Tuberculosis Commission. Its members are Drs. Lilian Welsh, W. Frank Hines and Wm. S. Thayer, and Messrs. Geo. Stewart Brown and John Glenn.

ACCORDING to *American Medicine*, a woman physician, Dr. Conard, has resigned from the resident staff of the West Philadelphia Hospital because she had to go out late at night without an escort.

THE Denver College of Medicine and the Gross Medical College have consolidated under the name of the Denver and Gross College of Medicine, Medical Department of the University of Denver.

CHOLERA continues to spread in Manila. Among the American troops ninety deaths have occurred. The gravity of the epidemic in the

island may be known from the figures—8899 cases and 6676 deaths.

MONTEVUE HOSPITAL FOR THE INSANE at Frederick was the scene of a destructive fire on July 14. The three upper floors of the south wing were burned. The patients were all safely removed, though with some difficulty. The loss is about \$10,000. The cause of the fire is unknown.

THE grand jury of Chicago has reversed the finding of the coroner's jury in the case of the fire at St. Luke's Hospital, which destroyed the lives of twelve people. The coroner's jury found the hospital authorities negligent. The grand jury finds that everything possible was done to save the lives of the patients.

DR. GEORGE L. HICKS, a prominent physician of Dorchester county, died at his home in Cambridge on July 13, aged sixty-three. Dr. Hicks was a native of Alexandria, Va., and a graduate in medicine of Columbian University. He practiced for a few years in Baltimore county, and for more than thirty years in Dorchester.

DR. BENJAMIN LEE, secretary of the State Board of Health of Pennsylvania, is quoted as saying that two weeks of hot weather will kill the germs of smallpox. They had weather of that sort at St. Pierre some weeks ago, but we hope that no such intemperate temperature is anticipated in any part of the United States.

THE following changes have been made in the medical faculty of the Columbian University: Dr. Walter Reed, U. S. A., has been elected to the chair of general pathology; Dr. Sterling Ruffin, to the vacancy in the chair of practice of medicine; Dr. Thomas Claytor, to the chair of materia medica and therapeutics; Dr. H. B. Deale, a professor of clinical medicine; Dr. H. W. Hawkes, a professor of clinical medicine; Dr. James Carroll, as associate professor of pathology and bacteriology.

DR. WALTER PRESCOTT SMITH died at his home, 118 West Madison street, Baltimore, on July 18, after a brief illness. Dr. Walter Smith was the second son of the late Dr. Alan P. Smith, and a grandson of Nathan R. Smith. He graduated in medicine at the University of Maryland in 1888, and had practiced medicine in Baltimore since that date. He was a visiting physician of the Nursery and Child's Hospital and of the Hospital for Consumptives at Towson. He is survived by a widow, who was Miss Charlotte Williams, and one son, Alan P. Smith.

DR. JAMES E. DWINELLE was found dead in bed at his home, Baltimore street and Broadway, on July 18. Some months ago Dr. Dwinelle was injured by collision with a sled, and having an antecedent heart trouble, never fully recovered from the effects of this accident. His death was, however, quite unexpected, as his health had considerably improved. Dr. Dwinelle was born at Cazenovia, N. Y., on January 30, 1830, and graduated in medicine at Jefferson in 1854. He came to Baltimore in 1855, and continued an active practice until quite recently.

THE Medical Society of the District of Columbia has recommended the consolidation of all the public medical services under a single official head, the Health Commissioner of the District. This, if carried into effect, will combine the Health Department, the medical services of the police and fire department, the sick poor, the Washington Asylum and Workhouse, examination of the insane, admissions to hospitals, license to practice medicine, pharmacy and dentistry. The Health Department has now a very efficient and responsible head. The proposed contract seems, however, rather large.

THE Tri-State Medical Association of Western Maryland, Western Pennsylvania and Western West Virginia met in semi-annual session in the room of the Twentieth Century Club, Cumberland, July 20. The following officers were elected for the ensuing year: President, Dr. W. Q. Skilling, Lonaconing; first vice-president, Dr. Timothy Griffith, Frostburg; second vice-president, Dr. Robert Gers-tell, Elk Garden, W. Va.; third vice-president, Dr. H. C. McKinley, Meyersdale, Pa.; corresponding secretary, Dr. F. W. Fochtman, Cumberland; recording secretary, Dr. Percival Lantz, Alaska; treasurer, Dr. E. B. Claybrook, Cumberland. Papers were read as follows: "The Causation, Symptomatology and Treatment of Extrauterine Pregnancy," by Dr. Thomas C. Cullen, Baltimore, Md.; "Immunity," by Dr. Clement R. Jones, Pittsburg, Pa.; "Notes on Smallpox and Vaccination," by Dr. J. M. Spear, Cumberland, Md.; "Static Electricity as a Therapeutic Agent," by Dr. H. W. Hodson, Cumberland, Md.; "Medical Ethics and the Physician from a Business Standpoint," by Dr. G. L. Broadrup, Cumberland, Md.; "Report of an Interesting Case of Injury to the Head," by Dr. J. C. Cobey of Frostburg, Md.; "Hemorrhage and Perforation Occurring as a Complication of Typhoid Fever," by

Dr. E. B. Claybrook, Cumberland, Md.; "Heart Disease and Digitalis," by Dr. W. O. McLane, Frostburg, Md.; "Chloroform Anesthesia," by Dr. E. T. Duke, Cumberland, Md.

THE American Association of Obstetricians and Gynecologists will hold its fifteenth annual meeting in the Convention Hall of the Hotel Raleigh, Washington, D. C., Tuesday, Wednesday and Thursday, September 16, 17 and 18, 1902, under the presidency of Dr. Edwin Ricketts of Cincinnati. All physicians, and especially those in Washington and vicinity, are most cordially invited to the scientific sessions. The following-named papers have been offered: "Normal Saline Solutions During Abdominal Operations," Wm. H. Humiston, Cleveland; "Further Notes on Ovarian Transplantation," Robert T. Morris, New York; "Surgery of the Ileo-Cecal Valve," N. Stone Scott, Cleveland; "Ice Following Abdominal Sections," Frank F. Simpson, Pittsburg; "Etiology and Prophylaxis of Traumatism of the Female Pelvic Tract Following Labor," E. J. Ill, Newark; "Pelvic Disease in the Unmarried," C. L. Bonifield, Cincinnati; "Report of a Few Cases of Operation for Peritoneal Tuberculosis, with Remarks," Rufus B. Hall, Cincinnati; "Suppression of Urine as a Post-Operative Condition," T. J. Crofford, Memphis; "Occipito-Posterior Positions," J. M. Duff, Pittsburg; "Intestinal Anastomosis," J. A. Lyons, Chicago; "Retained Placenta Due to Uterine Fibroids, with Cases," M. A. Tate, Cincinnati; "Hydramnion, with Report of a Case," E. F. Fish, Milwaukee; (a) "Personal Experiences in the Use of the Angiotribe;" (b) "Two Fatal Cases of Tetanus Following Abdominal Section," Walter B. Dorsett, St. Louis; "A Second Contribution to the Treatment of Gastric Ulcer," Henry Howitt, Guelph; "Hemorrhagic Cysto-Sarcomata of the Ovary—Their Infectious Character," J. B. Murphy, Chicago; "General Consideration of Drainage in Abdominal and Pelvic Surgery," Joseph Price, Philadelphia; "Surgical Relations that the Appendix Region or Zone Bear to Pelvic Suppuration and Operative Complications," Joseph Price, Philadelphia; "Infantile Intestinal Diverticula," Joel W. Hyde, Brooklyn; "Myomectomy vs. Hysterectomy," C. C. Frederick, Buffalo; "Anterior Transplantation of the Round Ligaments for Uterine Displacements," A. H. Ferguson, Chicago; "The Cases of Peritonitis which Recover After Operation," Wm. E. B. Davis, Birmingham, and many others.

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INFLAMMATION OF THE DIAPHRAGM COMPLICATING PNEUMONIA.

By C. W. G. Rohrer, B.Sc., M.D.,

Resident Pathologist to the Baltimore City Hospital; Demonstrator of Pathology, College of Physicians and Surgeons, Baltimore.

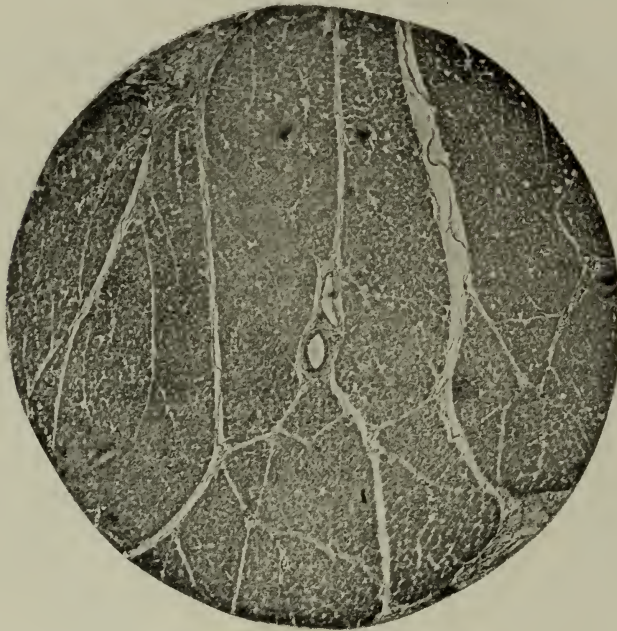
FROM THE PATHOLOGICAL LABORATORY OF THE COLLEGE OF PHYSICIANS
AND SURGEONS, BALTIMORE.

PNEUMONIA, with its complications and sequelae, has long engrossed the attention of clinicians and pathologists. This is not at all surprising when one recalls to mind the fact that pneumonia is one of the oldest recognized diseases, and stands next to tuberculosis on the mortality list. Indeed, Baltimore statistics for 1901 show a greater number of deaths from pneumonia than tuberculosis.

In this paper I wish to call attention to a pathological finding which is, so far as I know, a hitherto undescribed complication. I refer to inflammation of the diaphragm, diaphragmitis, or phrenitis, so-called. The term phrenitis is perhaps misleading, as it is sometimes applied to inflammation of the brain, especially by veterinarians.

Frederick T. Roberts says: "The diaphragm is an important part of the respiratory apparatus in relation to the movements of breathing, and by no means receives the attention from a pathological and clinical point of view which it deserves." Austin Flint, Sr., in his paragraph on circumscribed pleuritis, makes the following statement: "Limited to the pleura investing the diaphragm (diaphragmatic or phrenic pleuritis), inflammation is supposed to give rise to symptoms which are distinctive, namely, hiccough attended with pain, and pain referable to the diaphragm in the acts of coughing." I am of the opinion that these symptoms are largely due to inflammation of the diaphragm, and not to a circumscribed pleuritis.

In the literature I find no reference to inflammation of the diaphragm as a complication of pneumonia. Pleurisy, pericarditis, endocarditis, meningitis, colitis, and numerous other minor complications receive due consideration. But inflammation of the diaphragm, it seems, has been overlooked entirely. A knowledge of its occurrence, I think, is important, as the clinical symptoms, so characteristic of pneumonia, are in part due to its presence. For instance, much of the pain usually attributed to the pleurisy associated with the disease is due to the movements, restricted though they may be, of the inflamed diaphragm. That the so-called pleu-



I.—Section of a normal diaphragm, showing a vein and artery in the center. The large white bands represent the perimysium. The finer white net-work represents the endomyseum, separating individual muscle fibres. The small black dots are sarcolemma nuclei.

ritic stitch—pain, due, I think, largely to the diaphragmitis—is intensified on deep inspiration and on coughing is not to be wondered at when one considers the fact that the diaphragm is the principal muscle of inspiration, and is brought into active play on coughing.

To quote still further from Roberts: "The serous covering of the diaphragm, either on its thoracic or abdominal aspect, is not uncommonly involved in cases of acute pleurisy or peritonitis, respectively, and the inflammatory process may penetrate its struc-

ture. It may also be involved by extension from pericarditis." Two of my specimens most beautifully show this condition. The inflammatory process extended to the pericardium, and from thence to that portion of the diaphragm upon which the base of the pericardial sac rests. Many examples of subphrenic abscess are reported in the literature. These localized accumulations of pus beneath the diaphragmatic partition have usually been attributed to a localized peritonitis. But Meltzer reports a case of subphrenic abscess which was most certainly due to pneumonia, and mentions two others, one reported by Jahn, which he considers doubtful, and a third one reported by Gaehde. Inflammation of the diaphrag-



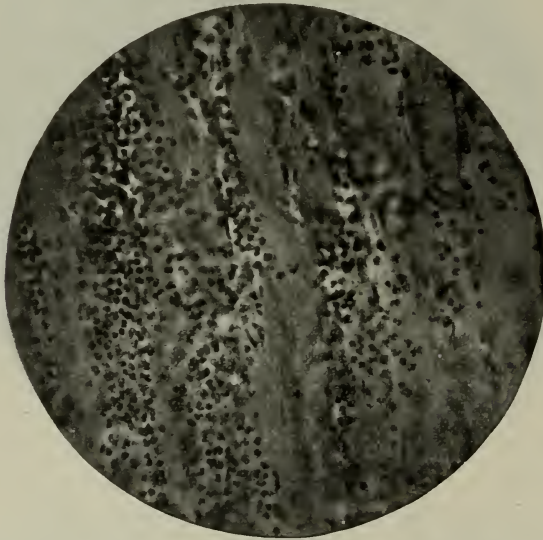
II.—Section of inflamed diaphragm. The dark bands consist entirely of pus cells, showing how bacteria are transported from the pleural to the peritoneal surface of the diaphragm. Many of the muscle fibres are separated by masses of neutrophilic leucocytes, and there are also local collections of pus. Magnification the same as in I.

matic pleura was not present in either case. Meltzer ascribes the causation of these subphrenic abscesses following pneumonia to the passage of organisms—usually the pneumococcus lanceolatus or streptococcus pyogenes—through the lymph channels of the diaphragm. He also states that had the migration of the organisms from the pneumonic focus been preceded by inflammation of the diaphragmatic pleura the stomata on the thoracic side of the pleura would have been obliterated by fibrin, and the passage of the organisms through the lymph channels would have been pre-

vented. Mason describes a case of perinephritic abscess involving the diaphragm and pleura in which the diaphragm was necrotic.

STRUCTURE OF THE NORMAL DIAPHRAGM.

The diaphragm is the elliptical-shaped, fibrous partition which separates the thorax from the abdomen. Its muscle fibers are of the striated variety. Some anatomists divide the diaphragm into two portions—an upper or great, and a lower or lesser muscle. The diaphragm is attached to the whole of the circumference of the thorax. It presents three large apertures—the aortic, esophageal, and the opening for the vena cava—and several smaller ones. In shape it is arched, having its convexity toward the chest and its concavity toward the abdomen. The diaphragm is in relation with four serous membranes, namely, the two pleurae and pericardium



III.—Section of inflamed diaphragm under a higher power. This shows the characteristic irregular contour of the so-called polymorpho-nuclear leucocyte or pus cell. These cells occupy the lymph spaces between the muscle fibres. These fibres with their transverse striae and sarcoplasmic nuclei are well shown. The picture presents a typical example of purulent inflammation.

on its upper surface, and the peritoneum on its lower surface. The diaphragm is the principal muscle of inspiration.

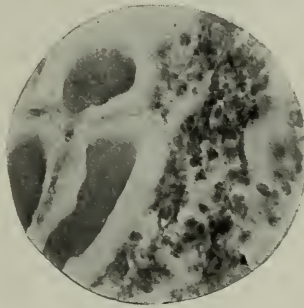
The blood supply of the diaphragm is from both the thoracic and abdominal aorta, its innervation embraces nerve fibers of the medullated and non-medullated varieties, and it is particularly rich in lymphatics.

Microscopically, on long section the transverse striations of the muscle fibers are plainly visible. The muscle nuclei, while abun-

dant, are not in excess, and enjoy a fairly regular distribution. They are oval or hyphen-shaped, and are usually placed parallel to the long axis of the fibers. Much connective tissue is visible, the diaphragm preserving to a certain extent its embryonic structure. The serous coverings present the usual characteristics of serous membranes elsewhere. On cross-section the individual fibers are irregularly polygonal or triangular, and the connective-tissue framework stands out in bold relief.

THE INFLAMED DIAPHRAGM.

The diaphragm, macroscopically, or as a whole, will first be considered, then the microscopic changes in each histological constituent will be discussed *ad seriatim*. It is only fair to say at the outset that the condition is very largely a myositis. Viewed grossly, on *sectio cadaveris* the inflamed diaphragm is thickened, pale in hue, and shows alternate light and dark areas, due to the presence of inflammatory products between the muscle bundles. If the process is but mild, no gross alterations can be observed.



IV.—This photograph shows a collection of pus cells in the lymph spaces between the muscle fibres. Careful examination will show a number of fine black dots usually included in the protoplasm of the leucocytes. These are pneumococci stained by Weigert's method.

When the lower lobe of the lung is the seat of the pneumonic condition, and the inflammation of the diaphragm is the result of direct extension of the inflammation through the lung and pleura, the base of the lung is usually firmly adherent to the diaphragm, and the diaphragmatic pleura is the seat of a fibrino-serous or fibrino-sero-purulent inflammation. When the inflammatory process spreads from the lung to the diaphragm, through the lymphatics, the diaphragmatic pleura is usually free from disease. The diaphragmitis may be circumscribed or pretty general. It is oftenest localized on the right side; next in order of frequency is the left side, and the central area is especially affected in those extremely fatal cases in which pericarditis ensues.

Microscopically, the principal features are the engorged vessels, the cellular exudate, and hyaline degeneration of the muscle fibers. The blood-vessels are distended, contain many leucocytes, and the

perivascular tissue is infiltrated with cells. The intermuscular septa are thickened, infiltrated with pus-cells, and contain an increased number of connective-tissue nuclei. The polymorphonuclear leucocytes become more numerous toward the surface, and just beneath the muscle sheath they form a distinct layer or band. This is suggestive of a peripheral leucocytic invasion, the number escaping from the vessels being in the minority. This especially applies to those cases in which the lower lobe is the seat of the pneumonitis. The muscle fibers are swollen, have lost in part their accustomed striations, and present a distinctly hyaline aspect. Some of the nuclei are fragmented, some granular and indistinct, whilst others stain darkly. The most conspicuous cellular elements are the polymorphonuclear leucocytes or pus-cells. Some have even entered the sarcolemma of the muscle fibers. There are numerous aggregations of pus-cells, with here and there a collection of small round cells. The connective-tissue nuclei, stated above, are increased in number.

In pneumonia the inflammation reaches the diaphragm by direct extension, by the lymphatics, or by the blood-path. When the diaphragmitis is the result of direct extension the lower lobe of the lung is usually the seat of the pneumonic condition. The pleura is usually likewise affected, and the diaphragm becomes inflamed by direct extension of the inflammation through the lung and pleura. When the pneumonic process occurs in the middle or upper lobe the inflammation extends to the diaphragm by way of the lymphatics. Micro-organisms enter the lymph stream, and are carried to the diaphragm, to be arrested in the first lymphatic gland which they reach, where they excite a secondary inflammation. Instances in which the micro-organisms enter the blood-streams and are carried to the diaphragm must be rare. This undoubtedly does sometimes occur in those cases in which the disease takes on a virulent form—a pneumococcic septicemia, with death in a few hours or a day or two, the pneumococci having invaded the blood-stream, viscera, and organs. The presence of pneumococci in the inflamed diaphragm can be demonstrated in sections stained by the Gram-Weigert method. Inflammation of the diaphragm complicating pneumonia may be of various degrees of intensity corresponding to the state of the lungs. The inflammatory process may even extend to the peritoneum. Thompson mentions peritonitis as one of the rarer complications of pneumonia. In one of my specimens the peritoneum is infiltrated with round cells.

SIGNS AND SYMPTOMS OF ACUTE DIAPHRAGMITIS COMPLICATING PNEUMONIA.

There is no well-defined symptom-complex in acute inflammation of the diaphragm complicating pneumonia. Given a case of pneumonia which develops severe pain in the region of the diaphragm, *diaphragmodynia*, perhaps constrictive in character, intensified on deep inspiration and on coughing, respiration hurried,

shallow and thoracic in character, it is a fair presumption that the pneumonia is complicated by an acute inflammation of the muscular substance of the diaphragm. Pain, too, may be elicited by pressure over the epigastrium, and the pain is sometimes referred to the abdomen, especially in the case of small children. The abdominal pain may sometimes be due to a complicating colitis, first described by Bristowe. But colitis is a very rare complication of pneumonia, and personally I have not seen a case. So it is fair to assume that the abdominal pain in pneumonia, heretofore unaccounted for, is almost always referred to the abdomen from the inflamed diaphragm. The inflammatory changes in the diaphragm may be so intense as to cause more or less paralysis of this structure. Paralysis, partial or complete, when it occurs, notably increases the patient's distress, and probably not infrequently figures as the immediate cause of death when the demise is sudden. Paralysis of the diaphragm may also result from overexertion as well as from degeneration of the muscle fibers. Deficient expansion of the thorax and persistent dullness at the base of the lung also are signs which point to diaphragmitis as a complication.

CONCLUSIONS.

1. Inflammation of the diaphragm is a common complication of pneumonia. In most of those cases in which it is not found it will be observed that the specimen was obtained from a part of the diaphragm remote from the inflamed lung. Extension of the inflammatory process from the pneumonic lung to the diaphragm takes place in two or three ways—(a) by direct extension; (b) by the lymphatics; (c) by the blood-vascular system.

2. To inflammation of the diaphragm is due in large part the so-called "pleuritic stitch-pain," also the pain in the abdomen often complained of, especially by children. When the patient lies on the affected side the pain is diminished, because there is less motion of the chest-wall and diaphragm in that position. The dyspnea of frequency, always present in pneumonia, is due in large part to the patient's efforts to restrict the movements of the diaphragm.

3. The inflammation especially involves the muscular substance of the diaphragm, and may be mild or intense, in keeping with the grade and extent of the pneumonic condition. It is of bacterial origin, the usual micro-organism being the pneumococcus.

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THE IDEAL RESULT TO BE KEPT IN VIEW IN THE OPERATIVE TREATMENT OF CON- VERGENT STRABISMUS IN CHILDREN.

By Samuel Theobald, M.D.,

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A PAPER READ BEFORE THE AMERICAN OPHTHALMOLOGICAL SOCIETY, JULY 17, 1902.

FROM the oculist's point of view, to prescribe glasses for a small child, to be worn constantly and, perhaps, permanently, is a matter of little moment, but, especially among the well-to-do classes, the child's parents regard the matter in a very different light. To them, not infrequently, it is a serious misfortune, a matter taken much to heart, a source of real distress. And, after all, it must be admitted that this feeling is not wholly without warrant. Unquestionably, it is a misfortune for a child, whether boy or girl, to be doomed to the perpetual wearing of glasses, for it cannot be denied that the good looks of the girl and the manly appearance of the boy are seriously marred thereby. Such being the case, it seems to me it is the oculist's duty not to lose sight wholly of this aspect of the matter, but in the prescribing or withholding of glasses to give it a measure of consideration, and to permit it, within certain limits, to influence his decision.

It is in the management of cases of squint occurring in children that this deep-rooted prejudice against glasses is especially apt to manifest itself. Every oculist doubtless has observed the feeling of disappointment which parents commonly exhibit when told that the successful outcome of a proposed operation for squint will depend largely upon the subsequent use of glasses. To the parent the choice between the squint and the glasses seems little else than a choice between evils of nearly equal magnitude.

In several cases of squint the success which has attended my efforts to regard this parental prejudice has been such as to encourage me to further experimentation in the same direction, and, on the whole, to lead me to believe that, oftener than is commonly supposed, it is possible after operating for convergent strabismus to avoid the constant and continued use of glasses. The practicability of doing this will depend, of course, largely upon the degree of optical error back of the squint, but as there are many cases of concomitant convergent strabismus in which the ametropia is not excessive, the field for such experimentation is not so restricted as might appear at first sight.

Briefly outlined, the method which I have employed is as follows :

A minimum amount of muscle-cutting, usually a free tenotomy of the internal rectus of the squinting eye, which commonly leaves a residual squint.

The correction of this residual squint and the establishment of binocular vision by the careful adjustment of glasses, prisms being not infrequently combined with the spherical or sphero-cylindrical correction in order to encourage binocular fixation.

And, finally, after binocular vision has been firmly established through a period of several months, the *gradual* withdrawal of the assistance afforded by the glasses, until ultimately the glasses are put aside altogether, or, at most, are worn only in near vision.

In modifying the glasses, the prisms are first reduced in strength, then withdrawn, then a gradual reduction in the spherical correction is made, until finally nothing is left. The rapidity with which these changes can be effected necessarily varies in different cases, and after each change one should assure himself that binocular fixation is still maintained. The recurrence of the squint or the development of asthenopic symptoms would be an indication that the help afforded by the glasses was being too rapidly withdrawn.

The conditions which make against the success of the method are the existence of a high grade of hypermetropia, a very considerable amount of astigmatism, decided anisometropia, marked amblyopia in the squinting eye, and, above all, that pronounced indisposition to binocular vision which exists in some strabismic individuals, and in the presence of which one may congratulate himself if a satisfactory result is secured even with the aid of carefully-selected and constantly-worn glasses.

The history of a single illustrative case, which can be given in a few words, will suffice to show, when the conditions are favorable, what may be accomplished by the method I have outlined.

An extremely pretty little girl, four years of age, the daughter of one of the teaching staff of the Johns Hopkins University, was brought to me in November, 1897, for advice regarding a pronounced convergent squint of the right eye. She had been seen some months previously by Javal in Paris, who, it seems, was not disposed to operate, but advised only that the vision of the squinting eye should be strengthened by closing the good eye, and using the defective one during a part of each day. Whether due to the carrying out of this advice or not, the sight of the squinting eye at the time she came under my observation was less defective than is usually the case. A two-grain solution of atropia which I prescribed revealed in each eye a hypermetropia of 3.50 D., but, though used for a week, produced no appreciable effect upon the squint. A free tenotomy of the right internal rectus was then made. The cosmetic effect was good, but the cover test showed a

residual squint, and, as this persisted, on the fifth day after the tenotomy glasses for constant use were prescribed as follows:

L. Eye $+ 2.75s = \text{Prism } 2^{\circ}$ base out.

R. Eye $+ 2.75s = \text{Prism } 3^{\circ}$ base out.

The effect of these glasses was to establish in a short time binocular fixation in both far and near vision. As this was satisfactorily maintained, two months after the glasses were prescribed the prism of the left lens was turned with its base inward, thus reducing the combined prismatic effect from 5° to 1° . This change gave rise to no inconvenience, and, binocular fixation continuing as before, the lenses were changed, nine days later, to $+ 2.s$ for each eye. Twelve days after this they were further reduced in strength to $+ 1.s$, and when these had been worn for about three weeks they were put aside, and the little patient allowed to go without any glasses. Transient asthenopia followed the withdrawal of the glasses, but there was no disturbance of binocular vision. Eleven months later, after an attack of influenza, the child being then in attendance upon school, there was some complaint of discomfort in the eyes, but carefully-made tests showed not only that binocular fixation was still maintained, but that there was orthophoria in distant vision.

It is not improbable that in this, as in other similar cases, glasses for near vision may, sooner or later, be required, but even should this prove to be necessary, from the parent's point of view it will be a mitigated evil as compared with their constant use.

Note.—Since this paper was presented to the Ophthalmological Society I have received a letter from the father of the little patient, dated Paris, July 7, 1902, in which he says: "Her eyes have been perfectly '*straight*' at all times, nor has she ever complained of her eyes in any way since the operation."

A FATAL CASE OF STAPHYLOCOCCUS PYOGENES AUREUS INFECTION OF THE THROAT RESEMBLING DIPHTHERIA.

By John Girdwood, M.D.,

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BACTERIOLOGICAL REPORT BY WM. ROYAL STOKES, M.D.

ALTHOUGH the disease known as diphtheria usually presents a clear clinical and anatomical picture, yet there are certain rare cases in which this symptom complex is not caused by the bacillus of diphtheria. Such conditions have already been described as being caused by streptococcus pyogenes and the pneumococcus. I have not been able to find in literature any cases due to staphylococcus pyogenes aureus, and resulting in general infection. A case of this sort is therefore of some interest. In a paper entitled "Studies Concerning General Infection with Staphylococcus Pyogenes Aureus," thesis for degree, Faculty of Medicine of Paris, June 27, 1901, the author, Paul Mathieu, first describes the difference between a septicemia, where the bacteria are merely present in the blood, producing morbid effects, and a pyemia, where the pyogenic organisms produce purulent foci in the viscera. After mentioning the main cultural and pathologic features of the different staphylococci, the author cites a number of cases of general infection with staphylococcus pyogenes aureus.

According to many French authors, such infections have followed furunculosis, varicella, stomatitis, otitis media, lesions of the bronchial and urethral mucous membrane, the uterine mucous membrane, osteo-myelitis, and broncho-pneumonia. These micrococci form emboli in the capillaries and lymph vessels, and then pass into the blood current. The observations which Mathieu made personally are seven in number. The first two cases were uterine sepsis following abortion, with broncho-pneumonia, endocarditis, visceral abscess, and general infection with staphylococcus pyogenes aureus, and of purpura, nephritis, and general infection. The third case was of endocarditis, nephritis and pyemia with general staphylococcus aureus infection following a urethral stricture. The other cases were infections with this organism following such conditions as purulent inflammation of the urinary tract, pleural tuberculosis, and influenza.

Clinical History.—John A. H., aged two years and nine months, was seen by me on June 2, 1902, at 9 P. M. He complained of sore throat and fever, which began on the previous day. His temperature was 101° F., pulse 100. On inspection, both tonsils were enlarged and covered with a thick yellowish-white exudate, which was very suggestive of diphtheria.

Previous History.—In September, 1900, when the child was one year old, I was called to see him, and on examining the throat found both tonsils covered with a thick yellowish-white exudate.

I made a diagnosis of diphtheria, and injected 1500 units of antitoxin. Two or three cultures on successive days failed to develop the Klebs-Loeffler bacillus, and the exudate cleared up in five or six days under local treatment. Since that time the child has been in good health, was well nourished, and had no glandular enlargements.

On June 3, 1902, twelve hours after my first visit, I found him with a temperature of 103° F., pulse 120. The amount of exudate was enormous, extending to the arches of the palate. The diagnosis of diphtheria was made, and 1500 units of antitoxin injected. At the same time a culture was taken from the throat. Hydrogen peroxide was used on a mop every hour, and 1-60 grain strychnia sulphate administered every three hours.

On the following morning, June 4, the culture was reported negative for the Klebs-Loeffler bacillus, but the clinical manifestations were so pronounced that I administered another injection of 2000 units of antitoxin, and made a second culture.

On June 5 the second culture was reported negative, which caused me to doubt my diagnosis. I therefore withheld antitoxin, but continued the local and constitutional treatment.

June 6 there were marked evidences of general intoxication; temperature 105° F., pulse 160. The amount of exudate in the throat had increased, extending into the nasal cavities. The submaxillary glands were greatly enlarged and congested, and the picture was that of a well-advanced case of true diphtheria. I therefore decided to treat it as such, notwithstanding the fact that it was impossible to obtain a culture of the Klebs-Loeffler bacillus. I injected 2000 units of antitoxin in the morning, and repeated the same dose at night; the strychnia was increased to 1-60 grain every two hours, and 1 to 1000 solution of bichloride of mercury was applied to the throat.

June 7 there was no apparent change in the general condition, so that I injected another 2000 units of antitoxin. The administration of whiskey was begun by the mouth. It was now impossible to mop out the throat, because of the enormous amount of exudate, for fear of asphyxiation. There was no interference with respiration.

June 8, during the night, patient experienced a severe rigor; feet and hands were cold, and there was general lividity; pulse extremely weak, and 180 per minute; temperature 104.8° F. I injected 3000 units of antitoxin.

Several rigors occurred during the next twenty-four hours, the interval between them diminishing. During the evening of June 9 the temperature was 106.6° F., and pulse 200, hardly perceptible. Death occurred on June 10, at 3 A. M., the duration of the disease being ten days.

Autopsy eight hours after death.

Inspection—White male child, well nourished; discharge from nose and mouth.

Rigor mortis marked.

Post-mortem lividity dorsal.

Head section was not made.

Body section, thyroid body normal.

Thymus gland edematous and of moderate size.

Pericardium contains excess of sero-purulent fluid.

Heart apparently normal, valves normal, pale muscle.

Left lung, small scattered pneumonic areas.

Right lung partly consolidated, but floats in water; purulent discharge from smaller bronchial tubes.

Bronchial glands enlarged; no membrane in larynx, but a few scattered patches in pharynx; parotidean lymph glands enlarged and matted together.

Appendix normal.

Meckel's diverticulum absent.

Mesenteric glands show slight enlargement.

Small intestines normal.

Large intestines normal.

Stomach normal.

Liver shows yellowish areas, and is quite large.

Gall-bladder normal.

Spleen congested.

Pancreas normal; *adrenals* normal.

Kidneys overfull of blood; capsule strips easily.

Genito-urinary organs normal.

Anatomical diagnosis:

- 1st. Sero-purulent pericarditis.
- 2d. Purulent broncho-pneumonia.
- 3d. Congestion of spleen and kidneys.
- 4th. Fatty degeneration of liver.
- 5th. Fibrinous inflammation of pharynx.

Bacteriological Examination.—Cultures with dilutions were made from torsil, lung, kidney, spleen, liver, and blood. The spleen was sterile, but all of the other cultures gave a pure growth, with numerous colonies of staphylococcus pyogenes aureus.

Histo-Pathology.—Lung shows intense congestion, and many of the air-cells are filled with an exudate consisting of pus-cells, red-blood corpuscles, and desquamated epithelial cells. Many of the air-cells are free from any exudate, but the large bronchi contain plugs composed of pus-cells.

Parotid gland normal.

Kidney, slight congestion, and cloudy swelling present.

Heart—In many places the nuclei of the muscle fibers are surrounded by a clear space resembling a vacuole; the striae of the fibres are indistinct, and the cytoplasm is often broken up into irregularly-staining areas, separated by clear, interlacing channels. Many of the nuclei are irregular and shrunken.

Bronchial lymphatic gland contains several discrete fibrous or caseous tubercles without giant cells.

Liver—The liver-cells contain numerous fat vacuoles, and the capillaries contain many more polymorphonuclear leucocytes than normal. The fatty degeneration of the liver is quite intense.

Lymph gland normal.

Larynx—A portion of the mucous membrane is well preserved, but the tissue beneath this is infiltrated by polymorphonuclear leucocytes and fibroblasts. This equal mixture of pus-cells and fixed tissue-cells often separate either bands or individual muscle fibers from each other, thus infiltrating the epimysium and perimysium. The capillaries are distended and congested, and are often surrounded by large numbers of pus-cells and fibroblasts. The mucous membrane covering the pharynx suddenly thickens, and is infiltrated by many pus-cells. The mucous membrane then disappears, and is replaced by a typical ulcerated surface, consisting of fixed tissue-cells, newly-formed blood-vessels, and local collections of pus, forming small abscesses beneath the surface.

Trachea—The surface cells of the mucous membrane in places are necrotic, their nuclei fragmented. In places the mucous membrane is entirely gone, and is replaced by an ulcerative mass consisting of a surface layer of necrotic cells containing numerous micrococci and a deeper tissue infiltrated by pus-cells and fixed tissue-cells. There are numerous micrococci in the surface necrosis, and there are also groups of micrococci in the lymph spaces of the submucous coat of the trachea. The effect of the micrococci on the epithelial cells is peculiar; it causes the cytoplasm to lose its property of staining by eosin, and then to degenerate into a granular *débris*. The nucleus loses its chromatin, and does not stain, but many nuclear fragments are scattered through the surface mass of necrotic cells. In certain areas the necrotic layer of cells has disappeared, and is replaced by a typical ulcerating surface consisting almost entirely of pus-cells and groups of micrococci. The atrium of infection must be mainly the ulcerated and necrotic respiratory tract, where many micrococci are present on the surface, and in the lymph spaces beneath. The muscle, cartilage and glandular structure of the trachea are normal.

Pharynx—There is no mucous membrane present, and the surface is simply an ulcerative mass, consisting of pus-cells, fibroblasts, and newly-formed blood-vessels.

Summary.—The chief points of interest in the case may be summarized as follows:

1st. The infection by a pure culture of staphylococcus pyogenes aureus.

2d. The impossibility of distinguishing the condition from diphtheria without bacteriological examination of the exudate.

3d. The large amount of antitoxin administered, being in all six injections of 12,500 units, which, I think, is the strongest clinical evidence against the diagnosis of true diphtheria.

4th. The large amount of strychnia sulphate that can be administered under such conditions without evidence of physiological effects.

5th. The absence of metastatic abscesses or other clinical complications.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

RECENT WORK ON SERUM DIAGNOSIS, SERUM THERAPY, AND IMMUNITY.

GENERAL CONSIDERATIONS.

The work on serum therapy, serum diagnosis, and immunity has been so enormous, and the results are still so incomplete, that a general review of the subject is hardly possible at the present time. For that reason in this article we will only give digests of a few articles of interest upon this subject which have appeared recently, taking up, in turn, articles upon the general subject, following this with those on serum diagnosis, serum therapy or immunity in typhoid fever, diphtheria, tuberculosis, pneumonia, plague, cholera and leprosy, tetanus, pertussis and anthrax, malaria, and septicemia.

We would also refer those interested in this subject to articles which we have previously reviewed in this journal, among which may be found articles on serum diagnosis, serum therapy or immunity in typhoid fever, pneumonia, tuberculosis, epidemic dysentery, and other conditions.

Gay ("The Lateral Chain Theory of Ehrlich as Explanatory of Toxins and Antitoxins," *American Journal of Medical Sciences*, May, 1902) furnishes a very well-written and clear *résumé* of the modern theories regarding toxins and antitoxins in this article.

Toxins are labile, poisonous substances, elaborated by plant and animal cells, of which we have no exact chemical knowledge, but whose characteristics are recognizable by their physiological effect on animals. Toxins differ from all known chemical poisons in these important particulars:

1. They are subject to cell-assimilation—that is, they enter into direct chemical combination with protoplasm, whereas chemical substances either destroy the cell or are present in it in solution.
2. Toxins can call forth the production of antitoxins in the animal body, while chemical poisons cannot.
3. The action of toxins is delayed by a considerable incubation period. Toxins which have undergone change by time or certain chemical substances form substances known as toxoids, which possess an equal power of stimulating the formation of antitoxins, but have relatively little toxic effect.

Antitoxins are substances formed in the animal body by the inoculation of toxins or toxoids. They are recognized by their action in neutralizing the effect of toxins.

The variation in duration of active and of passive immunity, the presence of normal antitoxic bodies, and the increased production of antitoxin under the action of pilocarpine are all observations which make it certain that antitoxins must be regarded as products of cell activity.

Virchow pointed out in his "Cellular Pathology" that chemical substances were picked out by certain organs. The almost absolute absorption of the toxins of tetanus and diphtheria by nerve cells are further instances of the elective action. The obvious example of the variation of leucocytes in their reaction to stains is but a further step in cell-differentiation. It is on this basis of finer cell-structure that Ehrlich has conceived each cell as possessing, in addition to its nucleus, multitudes of atonic "lateral chains" or "receptors," each with its affinity for a certain assimilable substance. The normal function of the receptors lies principally in this choice of suitable foodstuffs, but toxins as assimilable substances are also taken up by receptors fitted for this purpose.

The toxin unit must now be considered as more than a simple body. It possesses, in fact, at least two parts—a "haptophore" group, which unites it to the cell-receptor, and a "toxophore" complex, which is the poisonous element. Toxoids as altered toxins possess only the haptophore group, which accounts for their absence of toxic effect. The body cell is more or less injured if the united unit be a toxin, owing to the toxophore group; but even if there be no toxophore group present, as in a toxoid, the receptors united are thrown out of function. Loss of the cell constituents in either case leads to regeneration of the parts affected, and regeneration of tissues, as Weigert has shown, takes place always in excess. This excess of toxin elective "receptors" cumber the cells, and they are eventually thrown off into the circulating blood, where they form the antitoxins. A toxin cannot harm a cell unless its haptophore group unites with a cell "receptor." When "circulating receptors" or antitoxins are present in the blood the haptophore groups become anchored, and never reach the cell, which accounts for the neutralization of the action of toxin by antitoxin. Absence of "receptors" suitable to unite with toxins explains the natural immunity of certain animals to certain toxins. Predominance of suitable receptors accounts for the election of certain toxins by certain tissues. A multiplicity of toxic bodies such as may occur in a single bacterial toxin simply calls for a corresponding multiplicity of receptors.

The period of incubation is the time during which the "receptors" are regenerating in the cells and before they are thrown off into the circulation. That the origin of antitoxins is primarily in the fixed cells is further shown by the fact that organs acquire antitoxic properties before the blood itself.

"Receptors" which unite with toxins are called "receptors of the first order," being relatively simple, and having only one receptive process. Similarly, toxins are "uniceptors," that is, they have only one uniting arm, the haptophore group. This conception is better understood on comparison with the structure of the hemolysins and their "receptors."

Pawlowsky ("The Fate of Various Microbes, Especially Pyogenic Bacteria, in the Bodies of Susceptible and of Immune Animals," *Zeitschrift f. Hygiene u. Infektionskrankheiten*, XXXIII, 261-312).—In this article is discussed the author's experiments regarding the fate of bacteria which have entered the body through the skin and the subcutaneous tissues, *i. e.*, by the route in which infection is usually introduced into the body. The bacteria used by him in his experiments were staphylococcus aureus, bacillus pyocyaneus, typhoid and diphtheria bacilli, etc. Both susceptible and immune animals were experimented upon. From his experiments he concludes that the bacteria introduced under the skin soon reach the blood and the internal organs by way of the lymphatics, and many of them are eliminated in the urine and bile.

In artificially-immunized animals the bactericidal agglutinating and antitoxic bodies are very unequally distributed in the different organs and tissues, and even in normal organisms there is a very unequal distribution of the antitoxins present. For the pyogenic micro-organisms the bone-marrow and the spleen are the organs which apparently are most important in their destruction, harmonizing with Ehrlich's and Wasserman's views of immunity in tetanus and typhoid.

Halban and Landsteiner ("The Serum of the New-Born and the Serum of the Mother," *München. med. Wochenschrift*, March 25, 1902) have contributed an article of interest in connection with the differences between the serum of the new-born and the serum of the mother. Already it has been shown that at the moment of birth the blood of the new-born child is poorer in fibrin and richer in formed elements than the maternal blood (Krüger), that the erythrocytes are less resistant than those of the mother (Scherenzius, Doféris, and Quinquaud), and that its cryoscopic point is lower than in the maternal serum (Veit).

Halban and Landsteiner's experiments have been conducted to determine the differences between fetal and maternal serum in regard to agglutinating, hemolytic, and bactericidal properties, and their results are as follows:

1. The serum of the mother and that of the child do not react in the same way. The hemolytic, agglutinating, bactericidal, anti-fermentative, antitoxic, and precipitating properties are much more marked in the maternal serum than in the new-born child.

2. These facts show that the active substances of the serum are present in the new-born, but that they are in smaller quantity, and

act less energetically than in the adult. These differences explain the diminished resistance which an infant has towards infections and intoxications.

Castellani ("Agglutination in Mixed Infections," *Zeitschrift für Hygiene und Infektionskrankheiten*, May 2, 1902, Vol. XL, p. 1).—The results of Castellani's experiments upon the agglutination in mixed infections, the typhoid bacillus, colon bacillus, pseudo-dysenteric bacillus being employed, were as follows: In the case of a mixed experimental infection the serum of the animal agglutinates all the micro-organisms which have produced the infection. In the case of each of these micro-organisms the agglutination presents the same characteristics as to its beginning, intensity and duration as in those cases where the infection has been produced by a single species. When in the course of a mono-microbic experimental infection another micro-organism is injected, the animal serum becomes agglutinating towards this micro-organism, and the agglutination possesses the same characteristics as in the case of a mono-microbic infection. Sometimes the agglutination of the second micro-organism appears more slowly and less energetically if the injection is made during the course of the first infection.

TYPHOID FEVER.

Zupnik ("The Widal Reaction in Typhoid Fever," *Zeitschrift für Heilkunde*, 1901, part 11) reports the results of his observations in 203 cases of typhoid fever observed by him at the Pribram Clinic.

Zupnik believes that a positive reaction signifies undoubted typhoid if a previous attack of the disease or the presence of jaundice can be ruled out. In cases of abortive typhoid, Zupnik got negative results, and he feels that this may be due to the fact that the point has not been reached in the course of the disease when the reaction makes its appearance, or that under the name abortive typhoid are placed diseases of a different etiology.

In other cases examined, and these included cases of miliary tuberculosis and sepsis, only those cases associated with jaundice gave a positive reaction. Gershel (*Medical Record*, November 26, 1901) obtained a positive Widal reaction in 81 of 84 cases in children from one and one-half to fourteen years of age, while in 115 cases of other fevers the results were all negative.

Cole ("Frequency of Typhoid Bacilli in the Blood," *Bulletin of the Johns Hopkins Hospital*, July, 1901) used the following technique in making blood cultures in typhoid fever:

A bichloride compress was kept on the elbow (internal aspect) for one hour, after which the arm was washed with sterile water, and by means of a canula 10 c. cm. of blood was removed from the vein. This was transplanted in bouillon, and after twenty-four hours from the bouillon on agar plates. By this means the diagnosis can be reached in thirty-six hours, but if a more rapid result is desired, six to eight hours after the agar culture has been made

a suspension of this culture in bouillon can be used with typhoid serum as a test for the typhoid micro-organism.

Typhoid bacilli were obtained in eleven of fifteen cases tested by this method, generally during the second week, once on the sixth day. The cultures were positive in cases where no Widal reaction was obtained from the serum. In six of twelve cases tested typhoid bacilli were also found in the urine.

Hewlett (*Medical Record*, November 30, 1901) found the typhoid bacilli in the blood in twenty cases of typhoid fever of twenty-four studied. In three cases they were found before the Widal reaction was positive. Their earliest appearance was on the fourth and fifth days of the disease, while they disappeared from the blood when the temperature began to fall.

A. E. Wright ("Antityphoid Inoculations," *The Lancet*, February 9 and May 4, 1901), in these articles, considers the results of the antityphoid inoculations which had been carried on so extensively by the medical department of the British army. In the case of the fifteen Hussars stationed in India, of 336 inoculated, two were taken ill with typhoid fever, and 1 died, while of 167 comrades not inoculated, 11 were taken ill with typhoid, and 6 died. Of the English troops in Egypt and Cyprus, of 720 inoculated soldiers, only 1 contracted typhoid, while of 2669 soldiers who were not inoculated, 68 contracted typhoid, of whom 10 died.

Tooth (*The Lancet*, March 16, 1901) gives his results in the Orange Free State. Of 232 cases of typhoid, 54 had previously received preventive inoculation, and of these 7.4 per cent. died, while of the 178 not so treated, 14 per cent. died.

Jez and Kluk-Kluczycki ("The Treatment of Abdominal Typhoid with Jez's Antityphoid Extract," *Wiener klin. Wochenschrift*, 1901, No. 4) recommend this extract for further use in typhoid, since they regard it as specific in its action, harmless, and therefore capable of being used in large doses. Furthermore, it is useful in arriving at a different diagnosis. If used continuously in typhoid, it lowers the body temperature and strengthens the pulse, shortens the duration of the disease, and lessens or neutralizes completely the action of the typhoid toxins. Unfortunately, treatment with this extract is extremely expensive.

Walker ("The Specific Treatment of Typhoid Infections in Animals," *Journal of Pathology and Bacteriology*, November, 1901) reports a series of experiments made by him in connection with the treatment of animals suffering with experimental typhoid infections. He used the extracts of organs of rabbits suffering with experimental typhoid, as first used and recommended by Jez in Vienna (and as already reported by us in this JOURNAL); with typhoid immune serum, and with a combination of the two.

According to Walker, the Jez extract had no protective effect, while the antityphoid serum prepared by him in the Institute at Berne was both protective and curative.

Markl (*Wiener klin. Wochenschrift*, 1902, No. 3), on the other

hand, found that the Jez extract possessed slight antibactericidal effects upon the typhoid bacilli, but was not antitoxic.

DIPHTHERIA.

Galatti ("Serum Therapy in Diphtheritic Laryngeal Stenosis," *Wiener med. Wochenschrift*, 1901, Nos. 2 and 3), from a careful analysis of the author's cases (twenty-nine before antitoxin was used, thirty-two afterwards), comes to the conclusion that serum therapy has enormously diminished the mortality in cases which have been intubated (47.8 per cent. in the first series, 5.5 per cent. in the second). The serum therapy also markedly shortens the intubation period (average intubation of the first series 108 hours, and the second series 58 hours).

Karfunkel ("Changes of the Alkalinity of the Blood After the Administration of Toxins and Antitoxins at Normal and at Artificially Increased Temperatures," *Zeitschrift für Hygiene und Infektionskrankheiten*, XXXII, p. 149).—The authors in their animal experiments occupied themselves with the following four points:

1. The influence of artificially-increased temperature upon the alkalinity of the blood.
2. Changes of the grade of the alkalinity of the blood after intravenous injection of diphtheria toxin into the ear vein of the rabbit with and without artificially-increased temperature.
3. The same studies after the administration of diphtheria antitoxin.
4. The study of the same changes after the injection of both antitoxin and toxin under the same artificial temperature changes.

The Lautenschläger thermostat was used to regulate artificially the temperature, while the Schultzenstein method was used for determining the alkalinity of the blood.

His experiments gave the following results in connection with the four points mentioned above:

1. Gradual increase of the temperature did not change the alkalinity of the blood; sudden and marked increase of temperature lessened the alkalinity considerably.

2. After intravenous injections of 1 c. cm. of diphtheria antitoxin at room temperature there was after one to two hours a considerable decrease in the alkalinity. Gradual heating brought about a rapid decrease of the blood alkalinity and a fatal termination of the infection.

3. After intravenous injection of diphtheria antitoxin at normal body temperature a distinct increase of alkalinity is noted, while under the influence of artificial gradual-temperature increase there is neither an increase of alkalinity nor any special harm to the blood.

4. After intravenous injection of two parts of pure antitoxin and one of toxin the alkalinity of the blood at room temperature is significantly decreased, while at artificially-increased temperature the amount of alkali remains intact and the animals experimented on well.

PEDIATRICS.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

ENLARGEMENT OF BRONCHIAL GLANDS IN CHILDREN. D. M. Officer. *Medical Record*, February 15, 1902.

Officer calls attention to the large number of children who are affected with enlarged bronchial glands, which are so often the starting-point of tuberculosis. In the diagnosis of the condition, if it be found that there is a definite enlargement which persists for more than a fortnight or so, it should be assumed in the majority of cases that it is tuberculosis, and the patient should be treated by open air, forced feeding, careful attention to hygiene, and codliver oil. For the spasmodic, jerky cough, the author uses 30 drops of creosote, with or without menthol, burnt on a hot shovel in the patient's room at night. At any time sudden dissemination may take place, such as pulmonary infection, or even a general tuberculosis. Caseous glands have been known to rupture into a bronchus, with perhaps immediate suffocation from caseous material aspirated, or by hemorrhage into the bronchial tube. The author appeals for an early recognition of a pathological process which has been largely overlooked in children, and which has an important effect on their lives.

* * *

DILATATION OF THE HEART IN CHILDREN. Eustace Smith. *Practitioner*, 1902, Vol. LXVIII.

Smith holds that cardiac dilatation to a moderate extent is far from uncommon in early life; indeed, in childhood the heart may be said to dilate with ease. The dilatation may be found out apart from any valvular affection. It is due to blood pressure in a flabby, ill-nourished or degenerate heart, and may occur without any resistance to the passage of blood from the heart. Acute infections, such as broncho-pneumonia, diphtheria, and acute rheumatism, are particularly liable to cause this. In any such case of acute disease, where the dilatation is rapid, a recumbent position should be enforced, and on no pretence should the patient be allowed to lift his head from the pillow. The diet should be regulated so that those foods which tend to ferment and fill the stomach with wind should be forbidden. The patient should be fed with milk, custard, yolk of eggs, etc. In the matter of drugs, if the case be a rheumatic one, and sodium salicylate is taken, it is well to combine with it 5 to 10 grains of iron ammonio-citrate. Strychnine in full doses is very valuable, as well as alcohol.

DIAGNOSIS OF SUPPURATIVE PERICARDITIS IN CHILDREN. Fred. Batten. *Pediatrics*, November, 1901.

The author has found this condition present in 3 per cent. of the deaths in the records in the Children's Hospital, London. The present paper adds six cases to the list—five in boys, and one in a girl. The total duration of the illness in these cases from the onset of the disease until death varied from seven to fifteen weeks. In two cases the disease accompanied or closely followed measles, while in the remaining cases pneumonia or bronchitis was the starting-point of the disease. It is difficult to point out any very definite features in the temperature which may be considered characteristic of the disease. The general curve of the temperature is irregular, with but few subnormal points. The pulse is rapid. A pulse of 150 may be found with but little distress. The respiration is usually increased, but maintains its normal ratio to the pulse.

The children are usually feeble and emaciated. Edema of the feet and legs may be present, but the author has never noted edema of the chest wall. Syncope not infrequently occurs. The cardiac impulse is generally to be felt either in the normal situation or in the epigastrium. The area of cardiac dullness is not necessarily increased. No murmur or alteration in the sounds of the heart can be detected. At no time was any pericardial friction audible. In every case there was evidence either of apical or basal consolidation of the lung or of effusion into the pleura. In the post-mortem examination of these cases both pleurae were universally adherent. In nearly every case there was more adhesion between the sternum and the outer surface of the pericardium than normal, and while in three cases the area of the pericardium was noticeably increased, it had not been detected by physical examination during life. The amount of pus in the pericardial sac varied from a few drachms to six ounces. In some cases it was thin, in others thick. It is noteworthy that in four of these cases there was a localized purulent effusion into the pleura, while out of nine cases of fatal empyema in the hospital at the same time the pericardium appeared normal in all.

The author recommends incision in an intercostal space or resection of a rib even for diagnostic purposes. Operative procedure, incision, and drainage offers the only chance for recovery.

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LOBAR PNEUMONIA IN INFANTS. Wm. F. Cheney. *American Medicine*, July 26, 1902.

Cheney calls attention to the frequency of the incorrect diagnosis of lobar pneumonia in infants. Being frequently ushered in by convulsions, vomiting, and diarrhea, it is often looked upon as a digestive disturbance pure and simple, and not infrequently attributed to "teeth" or "worms."

There are certain definite signs, more or less constantly present from the onset, that should attract attention to the lungs. The rate of respiration is invariably increased. The normal rate of a child six months to a year old is 30 per minute. If increased to 40 or 50, it is reasonably certain that there is involvement of the lungs. A little moan or grunt that often accompanies each expiration is rather typical of lobar pneumonia in infants, and indicates painful breathing. Cough is not a constant accompaniment; in fact, its frequent absence is one of the reasons for overlooking the condition. As infants do not expectorate, rusty sputum is not encountered. The physical signs in infants are often indefinite or misleading. It is often several days before they develop sufficiently to be plain. In any case, the characteristic signs are to be found with the stethoscope. Inspection and palpation are not as definite as in adults. On percussion we seldom find more than a slight diminution in resonance, because of the comparatively small consolidated area under the finger, and the overdistended lung over this which modifies the note.

The prognosis is good. Most patients under two years old recover.

The treatment is simple, for the disease is self-limited. Stimulants and cold baths are about all that is necessary.

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THE USE OF ARTIFICIAL SERUMS AS A MEANS OF PROGNOSIS IN DIPHTHERIA. Rabot and Bonnamour. *Lyon Medical*, No. 34, 1902; *American Journal of the Medical Sciences*, April, 1902.

In a series of observations covering the use of subcutaneous injections of artificial serum in infectious diseases, especially diphtheria, the authors have brought out the fact that the reaction of the patient to such injections may be taken as an almost infallible indication of the favorable or unfavorable outcome of the case. If after the injection a prompt diuresis occurs, without vomiting or diarrhea, the outcome of the disease will be benign, whatever the general state of the patient. If, on the contrary, after injection the quantity of urine is not increased, and vomiting or diarrhea occur, the prognosis is fatal, even though the child seems to be doing well at the time. Sometimes a first injection has indicated a bad prognosis, even when the child's general condition seemed excellent, and a second injection has given the same response, which did not seem first to be confirmed. In illustration of the certainty of the prognosis under these conditions, the authors detail a case of diphtheria in a child who even after the injection passed scarcely 300 grammes of urine in twenty-four hours, and had frequent vomiting attacks. He was apparently in good condition, however, laughing

and playing about the bed. Despite the employment of several diuretics, the excretion of urine did not increase, and death occurred on the eleventh day. Despite the certainty of prognosis thus early indicated, treatment should not be neglected. The serum test indicates the condition of the kidneys, and every effort should be made to favor the elimination of toxins. Diuretics should be employed, and the general condition should receive attention.

* * *

THE DIAGNOSIS OF TUBERCULOUS PERITONITIS IN CHILDREN.

Kissil. *Arch. f. klin. Chir.*, Vol. II, 1902.

The author, after reviewing this subject, concludes:

1. Tuberculous peritonitis is more common in children than is generally believed to be the case.
2. Many of the cases of so-called "spontaneous ascites" are in reality cases of ascites the result of a tuberculous peritonitis.
3. In many cases of tuberculous peritonitis the exudate will become absorbed under an appropriate tonic treatment, and eventually the patient will entirely regain his health.
4. In the majority of cases the onset of the disease is unnoticed. The first thing usually noticed is that the child has become thin and pale without apparent cause.
5. The presence of a serous pleurisy at the same time as a tuberculous peritonitis markedly facilitates the diagnosis.
6. The most valuable diagnostic symptoms are those caused by the presence of adhesions.
7. Examination of the fluid removed from a case of tuberculous peritonitis will show that it is rich in albumen and of high specific gravity.
8. The diagnosis is especially difficult in cases of chronic ascites accompanied by tuberculous pericarditis.
10. It is very exceptional that the onset of tuberculous peritonitis is anything but insidious.

SURGERY.

Under the Supervision of Hugh H. Young, M.D., Baltimore.

Assisted by Joseph Hume, M.D.

A CASE OF CEREBELLAR ABSCESS, WITH EXPLORATION AND DRAINAGE DURING ARTIFICIAL RESPIRATION. Cuning. *The Lancet*, July 26, 1902.

The diagnosis, and particularly the localization, of cerebellar abscess has been and still is the *bête noir* of the clinician. The case reported here presents several features of interest, and was operated on during artificial respiration, which was no longer necessary when the abscess was opened and pressure relieved.

The symptoms of cerebellar abscess confined to a lateral lobe are due only in part to the local drainage of brain tissue, but more particularly to the pressure exerted on the foramen of Magendie, thus obstructing the flow of fluid from the ventricles, and causing a great increase in intracranial pressure. In locating the abscess the following signs are of value: (1) Paralysis of the upper extremity of the same side; (2) conjugate deviation of the eyes to the opposite side; (3) lateral nystagmus; (4) exaggerated knee-jerk on the side of the lesion; (5) a tendency to face towards the side of the lesion in walking; (6) staggering gait, and a tendency to fall towards the side opposite to the lesion, and (7) attitude in bed, the patient lying on the side opposite to the lesion. In the reported case the only localizing symptoms were (1) exaggerated knee-jerk on the left side, and (2) inability to lie on the right side. The former was accurate, the latter not.

A brief review of the facts of this interesting case are as follows: The patient, a boy of seventeen, when first seen was complaining of frontal headache and pain behind the left ear. There was a foul-smelling discharge from both ears, apparently an otitis media following scarlet fever ten years before. Six days previous to being seen he was struck behind the left ear, and the present illness dated from that. On admission he was apathetic, very deaf, and quite intelligent. There was tenderness over the left mastoid process, and the membrane on that side was perforated; temperature 99.2° F., pulse 48 and regular, respiration 17. For eight days his condition improved, hearing became better, pulse rose to 58, but the frontal headache continued. Then he became worse, headaches grew more intense, he complained of giddiness, and vomiting was frequent; temperature 97° F., pulse 58. At this time the patient was not able to lie on the right side, as it increased the pain so much. A diagnosis of cerebellar abscess was made—probably on the right side. Soon after the anesthetic was started breathing ceased, but the heart continued to work; so artificial respiration was started. The right lateral lobe was first exposed, and though the dura was bulging, no pus could be found. The left side was then opened, and the introduction and withdrawal of a pair of forceps was followed by the appearance of foul pus, two or three drachms of which were evacuated. As soon as the pus appeared spontaneous respiration started, having been in abeyance for eighty minutes. The wound was irrigated and drained in the usual way.

Three hours after the operation the patient was conscious, but later convulsions came on, and death followed six hours after operative interference. The autopsy showed a ragged-walled abscess occupying most of the lateral lobe of the cerebellum. The only localizing symptoms in this case were the exaggerated knee-jerk on the left side, and perhaps the early symptoms of tenderness around the mastoid, which later disappeared completely. (Perhaps the explanation of why the patient could not lie on the right side is that in that posture there was more pressure on the foramen of Magendie, whereas when lying on the left side the pus gravitated away from the foramen, allowing freer drainage of the ventricles.)

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SURGICAL INTERVENTION IN CHRONIC NEPHRITIS (*Continued*).

Alfred Pousson. *Annales des Maladies des Organes Genito-Urinaires*, June-July, 1902.

The writer has had six cases of chronic nephritis, in which he has operated six times. Of these six cases, two died, but both were in the last stages of chronic nephritis, and one had barely recovered from a previous operation. The four other cases have been considerably ameliorated—in fact, one of them may be said to be cured. The operator only operated in those cases of chronic nephritis where the symptoms were of the gravest character, whereas other surgeons, Edebohls in particular, urge operation as soon as the disease is recognized in the hope of stopping the pathologic process.

Pousson holds that Harrison of London was the first to call attention to the disappearance of albumen and the other characteristic signs of nephritis after puncture and incision of the renal parenchyma. Harrison intervened in the first stages of the disease, and attributed the results to the relief of intrarenal tension. Newman, Wolff, and Ferguson contributed cases showing that decortication and fixation of the kidney caused albumen to disappear from the urine. Edebohls has done the most important work on the surgical cure of Bright's disease, and has given a different interpretation of its mode of action from that upheld by Harrison and others. Edebohls has operated eighteen times without a single death. Of these cases, thirteen can be traced at the present time. In seven cases nine years have elapsed since operation, and now no trace of albumen, casts or other signs of disordered renal function can be found, so they can be considered as permanently cured. In four cases operated on about six months ago, two have been already greatly improved, while the others show no traces of albumen or casts. In two months, which in words of Edebohls were "practically moribund" at the time of operation, though only three months has elapsed, yet they were considerably improved.

Summarizing the results, of thirty-three cases in which operation was done for chronic nephritis there were only two deaths. In the remaining cases complete recovery has ensued if a sufficient time has elapsed, and the other cases have been greatly improved.

As regards the location of the affected side, there are some clinical points of interest—the lesion is often unilateral, a point on

which all the great kidney surgeons agree, Edebohls finding one kidney only affected in eight of his sixteen cases. Often catheterization of the ureters is of value in determining the affected side, and in such cases there is but little danger associated with the process. Again, close questioning often reveals that the patient has had crisis of pain on one side or deep palpation elicits slight tenderness over one side. Some observers have noticed in unilateral chronic nephritis that there was an increase in the edema of the affected side.

These signs, taken in conjunction, often allow a positive diagnosis of unilateral chronic nephritis to be made. In any case, even if the lesion be bilateral, there is little danger to be feared from operative interference. The chief authorities on kidney surgery all agree on this point.

There are two operative methods at the choice of the surgeon—either incision of the renal parenchyma, with prolonged drainage, or decortication of the kidneys after the manner of Edebohls. The writer believes that the latter is the operation of choice, offering better advantages for a permanent cure. It is unnecessary to describe the technic of the operation, as it has been well described in many recent publications.

The manner in which incision and drainage or decortication acts on the pathologic process in chronic nephritis is as yet not completely understood. Theories have been advanced which in a measure appear true. Of these, the first advanced by Harrison is that there exists an intrarenal hypertension—a renal glaucoma—which is relieved by incision and bettered by the development of new vessels. Edebohls thinks that, even if it exists, this hypertension is but a secondary factor in the production and continuation of chronic nephritis. He rather believes that its genesis ought to be attributed to an insufficiency of the irrigation of the parenchyma. Stripping of the capsule allows the formation of new blood-vessels in the adhesions. Edebohls apparently has been able to verify this fact by an examination of the kidneys of three patients upon whom decortication had been previously practiced. The creation of this complementary circulation favors the progressive resorption of the interstitial and intertubular inflammatory products and exudates, relieves the tubules and glomeruli from compression, and permits the re-establishment of circulation in their midst. Consequently a new epithelium regenerates which is capable of carrying on the secretory function of the organ. Whatever may be the mode of action, clinically it is certain that decortication in chronic nephritis improves the condition of the patient, and often causes a complete disappearance of albumen and casts which persist for some years.

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THE TREATMENT AND PROGNOSIS OF PERFORATED GASTRIC ULCER,
WITH REPORT OF FIVE CASES. George Heaton. *British Medical Journal*, July 12, 1902.

Authorities differ considerably as to the frequency with which

stomach ulcers perforate into the general peritoneal cavity. Statistics vary from 6.5 per cent. to 28.5 per cent., but 15 per cent. may be taken as a fair average. The posterior wall of the stomach is the chief site of ulcers, and adhesions usually form here which protect the general peritoneal cavity from extravasation if perforation occurs. Of ulcers in the anterior wall, about 60 per cent. perforate, and generally extravasation into the peritoneal cavity follows.

In typical cases the symptoms of acute perforation are well marked, and diagnosis is easy. A previous history of gastric trouble, then a sudden intense burning epigastric pain, followed by collapse and vomiting, is the common picture. The skin is cold and clammy, respiration shallow, and the pulse rapid and small. The abdomen, at first retracted and rigid, later becomes relaxed, and retraction gives way to relaxation. However, in typical cases it is hard to make a positive diagnosis. Sometimes only a small leak occurs, and here, after the initial symptoms have passed off, there is a lull, and if the patient be kept quiet and food withheld his condition improves. There is no pain or vomiting, but the condition is deceptive. Of course, in such cases an exploratory laparotomy should be made.

The operative measures for the relief of acute perforation are too well known to need further exploitation. Particular care should be used in making the peritoneal toilet, and where there is much extravasation drains should be put in Douglas' pouch and both lumbar regions.

The post-operative treatment is exceedingly important. Shock is great, and should be met with intravenous injections of warm is great, and should be met with intravenous injections of warm, normal salt solution and hypodermic injections of strychnine or brandy. No food or water should be given by the mouth for from five to seven days, the patient being fed with nutrient enemata, and his thirst allayed by rectal injections of normal salt solution.

Prognosis depends upon several different factors—the conditions of the stomach at the time of operation. If full, there will be much extravasation, and peritonitis will come on early and be intense; if empty, there is but little extravasation. Continuous vomiting in the interval between perforation and operation increases the mortality largely. And, lastly, the length of time elapsing between perforation and operative interference is of great importance in considering the chances of recovery. The longer the extravasated material has been in the peritoneal cavity the greater the certainty and danger of a fatal septic peritonitis.

Rolson and Moynihan have compiled statistics showing that under twelve hours the death-rate is 28.5 per cent., whereas when thirty-six to forty-eight hours have elapsed it is 100 per cent. The actual recovery rate, taking all cases into consideration, is about 44.6 per cent., which in the future can be increased by quicker operative interference.

Society Reports.

AN EVENING WITH THE 'DOCTORS, PAST AND PRESENT.

By Joshua W. Hering, M.D.,

Westminster.

ANNUAL ADDRESS BEFORE THE ALUMNI ASSOCIATION OF THE UNIVERSITY OF
MARYLAND, APRIL, 1902.

It is a genuine pleasure to me to be present with you this evening, under circumstances in every way so agreeable, to do honor to our Alma Mater and to spend a brief period in the social enjoyments which belong to a family reunion.

I do not know whether I speak tonight to any of the class of 1855, but I recall with great distinctness the occasion on the 6th of March of that year when, with more than sixty other young men, all in the flush of young manhood, and with the roseate future before us, I stood upon the stage of the old Assembly Rooms, on the corner of Hanover and Lombard streets, and received from the hand of Hon. John P. Kennedy, who was at that time provost of the university, the diploma which was the sign and seal of my introduction to the medical doctorate. It was an occasion of supreme interest to me, and as I stood that day with the parchment in my hand which the faculty had adjudged me worthy to receive, and which I felt I had made an honest effort to obtain, the feeling of satisfaction was about as full and complete as on any occasion which has come into my experience since that time.

The diploma, coming to me from an institution so venerable and so worthy, I have never ceased to regard as a mark of distinction and a badge of honor. I hold it today as a cherished document, not alone for what it represents, but for the names it bears—names at the mention of which memories most pleasant and delightful troop before me, bringing many of the incidents of my student life of nearly half a century ago back to me with the freshness of yesterday:

Nathan R. Smith, the peer of any surgeon of his day in this or any other country; a man who for many years in all this section was the court of final resort in all difficult surgical cases, and to whose decision the profession, as a body, yielded cheerful acquiescence; a genius in surgery, both as to diagnosis and in operative skill. True, his scalpel did not go into regions which are entered by modern surgery almost every hour in the day, because the means of preventing destructive inflammation, so fully under-

stood now, were not known at that time. Indeed, if a surgeon of that day, without the preventive means now so common, had performed some of the operations which are so successfully performed at this time, and his patient had died, as he almost certainly would have died, the surgeon would have been liable to indictment for manslaughter. But for everything that went to make up a great surgeon of that period, and a clear, concise and practical teacher of surgery, Dr. Smith stood in the very front rank, and the boys were always glad to recognize his imperial character, and speak of him as "The Emperor."

Samuel Chew, the scholarly Christian gentleman, and the lucid teacher of the theory and practice of medicine; a man of most attractive presence and of broad general culture. His lectures were clear, forcible and comprehensive, covering all that was known at that day upon the subjects embraced in his course. He was a painstaking and conscientious teacher, and every student felt the uplifting power of his character. He was an acute and accurate diagnostician, and as a clinical lecturer was truly remarkable.

George W. Miltenberger, the only member of the faculty of that period who remains with us today. I was a student in his private office, and formed an attachment for him then which has been strengthened as the years have gone by. He was then in the flush of his manhood, quick, energetic, alert and capable; one of the most versatile men it has ever been my privilege to meet, and could have taken, with credit to himself and to the college, any position upon the faculty staff. He was at that time professor of materia medica and therapeutics, and was a lecturer of great attractiveness. He came into his lecture-room with a manner which inspired his students, and the charming way in which he presented his subject held the close attention of the class for the entire hour. The white locks which now rest upon his head as a "crown of glory" were then black as a raven's wing, and the long and useful professional career, which was then mostly before him, has been accomplished, and now, in the evening of his life, the halo of his good works, both to the profession and to his fellow-men, surrounds him as the gold and purple of the sunset.

William E. A. Aiken, a genial gentleman and an excellent teacher of chemistry, whose very appearance seemed to fulfil all the preconceived notions of a student concerning the old and venerable alchemists. He had rather a tough time with the average student, not from any fault of the professor or of the teaching, but because the subject to those who had not given it previous attention seemed rather hard to grasp. Most of us were in this category. Dr. Aiken was a delightful man, and very popular with the students, and seemed fully abreast of the times in his branch.

Richard Thomas, the plain, practical professor of obstetrics, charming in the simplicity of his manner, frank, open, courteous. While his lectures were devoid of ornamentation, he was a most helpful teacher. He entered largely into details in the classroom, and the boys would occasionally smile at what they considered the small and unimportant things he was teaching us. But I suspect that my experience when I got into the practice was perhaps that of others of the class, and it was this—that the little things Dr. Thomas taught us, and which we in our ignorance thought unimportant, were the very little things we needed to know, and which we would have been humiliated if we had not known. A doctor may be very wise, very profound, very knowing, but if he fails to know some little thing that he ought to know, and which some old women who is about does know, all his profundity goes for nothing, and he is discounted from that moment.

I remember that on one occasion Dr. Thomas embarrassed me very much. I was a bashful young man—a statement you may be disposed to accept with some reservation, but it was nevertheless so. He was holding a general examination in old Practice Hall, and was using a part of his lecture period for this examination. He called out in his rather brusque way: "Hering!" I answered, "Present!" "Hering, how would you put a woman to bed?" The question came so suddenly and was of such a character that I was somewhat taken aback. I had never put a woman to bed, and had never seen one put to bed. I supposed, however, there must be some particular way in which they got to bed, when it dawned upon me that it was the parturient bed he meant. I was too much confused to give him a very satisfactory answer, and in the goodness of his heart he helped me out by telling me how to do it.

And last but not least of the professors whose names appear upon my diploma was Joseph Roby, the teacher of anatomy. During the progress of the Civil War, when Stonewall Jackson was running all the federal troops out of the Valley of Virginia and cutting the other military pranks for which he was famous, the Secretary of War wrote to General Grant to send him a federal commander for the emergency. He sent Sheridan, with a note stating "there isn't much of him, but he is the man you want." Physically and anatomically, there wasn't much of Joseph Roby. He was small of stature, slightly bent, and very nearsighted. Artemus Ward said "he knew a man in California who hadn't a tooth in his head, but who could play a basedrum equal to any man he had ever heard." Joseph Roby was small, nearsighted, bent, but he could lecture on anatomy as few persons, I think, could do it. He had the happy faculty, and apparently without effort, of combining his teaching with apt expression or illustration which was at once pleasing and edifying, and which fixed the point of his teaching in

the mind of the student. His lecture period was the fifth of the day, occurring between the hours of 1 and 2 o'clock, when the boys were more or less tired and always hungry; but, notwithstanding this, there was generally a rush to Dr. Roby's lecture-room because of the interest with which he invested his subject, and because of the substantial teaching his lectures afforded.

As a member of the class of 1855 I revere the memory of the members of the faculty of that period who have passed away, and I bow with the profoundest respect and love to the one who survives, my old teacher and friend, praying that every needed good may come to him as he stands amid the shades of the evening of life.

Forty-seven years, in the very nature of the case, have greatly thinned the ranks of the class of my graduation. Except in a few instances, I have not been able to follow those who, with me, took the degree on that occasion. Now and then I meet one. We look at each other with something of a start, and then, with some effort, for it requires a little effort, try to make each other believe that we are not growing old. "Why, Jones! Yes, I remember Jones very well. He was a good student, and always sat far down in old Practice Hall on the right. He had a smooth face, coal-black hair, and looked every morning as fresh as a daisy. I can see him today just as plainly as if it had been yesterday. Is it possible that that man with full white beard and a little stoop is Jones? What! Jones of the class of '55?" "Yes, Jones of the class of '55." And the trouble of it is, he is looking at me and saying pretty much the same thing.

The storms of the night and of the day have swept over us since we stood as young men, with our new-made diplomas in our hands. And more trying than the "winds and the weather" have been the many seasons of deep solicitude for the lives of those who were entrusted to our care. We grow old. One class after another comes and goes. Its members are scattered far and wide, and it is a privilege indeed which those of us tonight enjoy to get together again under the shadow of the old home.

And our Alma Mater, with a retrospect of nearly a hundred years of life and progress, and the prospect of greater things in the future, we salute her as she enters the new century under conditions so auspicious. "Men may come and men may go; may she go on forever!" And we, as her children, joy in the fact that she is not only going on in years, but that she is getting larger every day. She is getting better looking as the years go by, lives in a larger house than she formerly occupied, has infinitely better furniture and general equipment than when some of us were school-boys, and in every department is doing business on a larger scale. As to the children who have swarmed out of the household in all

these years, those of the past and those of the present, if all these could be brought together they would form a company that would doubtless surprise and certainly gladden the heart of our good old mother.

Marvelous changes have occurred in our profession since the School of Medicine of the University of Maryland first opened its doors for the reception of students. No science has during that time, and especially in the past few decades, made greater strides than those which have been made in medicine and surgery, bringing us to most wonderful exactness of knowledge upon these subjects. But let us remember that the profession of today stands upon the vantage-ground of the work of the past—work which was performed with feebler light and under less favorable circumstances than those which surround us. Each generation of the past has made its contribution to the general fund of professional knowledge; each has made itself felt in the great onward movement in the various branches of the healing art.

And never before, I imagine, in the history of the world has the work been carried on with such assiduity and with such intelligent and unselfish application as at the present time. In our exultation over the great achievements in medicine and surgery of this day, however, it becomes us not to forget that the rapidly-passing present is an everlasting debtor to the patient work of the past, as I verily believe the future will stand as a great debtor to those who are living and working in our day.

It is said that "a pigmy on a giant's back can see farther than the giant himself." If that be so, and it is so, how is it when you put a giant on a giant's back? How greatly, in that case, do you enlarge the visual range of the giant who for the time being is on top! The giants of the present on the backs of the giants of the past, and lo, the marvelous results!

And so, Mr. President, the work goes on, and will continue to go on. And the University of Maryland, I make bold to say, may be fairly congratulated upon the part which it has taken and which it is now taking in the general advance of the work of our profession. Let her be true to the traditions of the past, to the high standards and excellent work of the present, and her children everywhere will rise up and call her blessed.

Book Reviews.

OPHTHALMIC MYOLOGY. A Systematic Treatise on the Ocular Muscles.

By G. C. Savage, M.D., Professor of Ophthalmology in the Medical Department of Vanderbilt University. Sixty-one illustrative cuts and six plates. Published by the author.

This book, which is intended only for the ophthalmologist, is one of the most interesting I have had the pleasure of reading in a very long time. Dr. Savage is well known to the medical profession as an earnest, enthusiastic student of muscle anomalies, who has worked hard on the subject for many years, and who brings to bear upon this work a finely-trained scientific mind and a large practical experience. As happens to every man who holds opinions at variance with generally-accepted theories, Dr. Savage has met with opposition, but his opponents have always, even in the heat of debate, believed in his honesty and admired his courage. We believe this complete exposition of his ideas will do much to clear the atmosphere of some misconceptions of his meaning, and we are absolutely sure that it will stimulate every reader to a renewed interest in and a more careful study of ocular dynamics.

We are not familiar with any book that sets forth so clearly the fundamental principles of ocular motion, and the methods of determining the different varieties of heterophoria and their proper treatment. For this much everybody will thank the author, though in doing so some will feel that they are called upon to overlook the fact that he has been quite verbose, and has at times, in this consequent repetition, reached a point bordering dangerously near upon that which would be wearying. The younger men, however, will gladly forgive this fault, if it be a fault, since it renders this difficult study somewhat easier and leaves little or nothing to inference.

Dr. Savage urges, with what appears to the writer to be sound argument, the advantages of the monocular phorometer for testing the muscles, and his own instrument seems to possess a wider range of usefulness than most of the binocular machines. The cyclophorometer has not been used very extensively heretofore, but it is evidently an indispensable appliance in the study of the conditions described under the head of cyclophoria and cyclo-tropia.

The points which will produce the most contention are, perhaps, the author's modification of Helmholtz's "Law of Direction," together with his substitution of a new law for "Listing's Plane," and the chapter on cyclophoria. Whatever may be the ultimate verdict upon these disputed questions, we certainly owe a debt of gratitude to such original workers as Stevens, Maddox, and Savage, and if they are not always right in every particular, and sometimes appear to be mounted on a wild hobby, they are blazing a path which will make the labor of those who follow them a trifling matter as compared with the tasks they have themselves performed. We may hold to our different views, and perhaps may prove them wrong in some particulars, but we must honor their devotion to a good cause. We hope every ophthalmologist will avail himself of the opportunity to read this book; it contains much good food for thought.

H. O. R.

A TEXT-BOOK ON DISEASES OF THE EAR, NOSE, AND THROAT. By Charles H. Burnett, M.D., Clinical Professor of Otology in the Woman's Medical College of Pennsylvania; E. Fletcher Ingalls, M.D., Professor of Diseases of the Chest, Throat, and Nose, Rush Medical College, Chicago, and Jas. E. Newcomb, M.D., Instructor in Laryngology, Cornell University Medical College, New York city. Philadelphia: J. B. Lippincott Company.

While the tendency of recent years seems to have been in the direction of more complete specialization, and the separation in practice of otology from rhinology and laryngology, as shown by the increasing number of physicians who devote themselves entirely to otology, still the relationship between pathologic conditions of the ear, nose, and throat render a combination book of this sort of great service. Too fine a division of these subjects would not be at all desirable, and inasmuch as the vast majority of ear diseases are directly traceable to abnormal conditions in the nose or nasopharynx, the otologist should keep well informed regarding these organs, even though he does not pretend to operate in those fields. We might take occasion also to urge here that throat specialists would do well to pay more attention to the ear conditions that arise from apparently slight pathologic changes in the nose, for not infrequently the otologist is forced to enter the other realm to correct deformities or remove inflammatory products that the rhinologist has considered too trivial for his care, but which have been frequently proven to be the cause of serious impairment of hearing. So it is well if a publication of this kind shall succeed in bringing both parties to study more carefully the broader aspects of their work.

The book under consideration here is in many respects an excellent one, but we cannot give it an unqualified approval. In our judgment, the sections presented by Drs. Ingalls and Newcomb are worthy of high commendation. Each topic is considered clearly and thoroughly, the matter is well arranged, the pathology is modern, and the treatment will meet the endorsement of the most advanced workers.

All of our readers will recall, with regret, the sudden death of Dr. Burnett very shortly after the completion of his work as editor of this book. He had long held a prominent position in the medical world, and had performed a great deal of good work. We had a very kindly feeling for him personally, but we should have to take exception to some of his teaching. The otologic section of this book does not appear to be as good as the rest.

H. O. R.

SURGICAL DIAGNOSIS. By E. Albert, M.D. Translated from the eighth edition by R. T. Frank, M.D. New York: D. Appleton & Co. 1902.

There are but few works in the English language devoted solely to the surgical diagnosis, and the translator has filled a long-felt want by his translation of Professor Albert's work. An endeavor has been made to present to the reader some of the surgical problems which arise in routine practice, and by the quotation of many illustrative cases to give him the advantage of much clinical demonstration. With this end in view theoretical classifications are not adhered to, but the diseases are grouped with reference to similarity of symptoms and general points of resemblance. The cases reported

are followed to autopsy or to the operating table, and the diagnosis thus confirmed or corrected.

To really appreciate the work one must read it, but it is very suggestive to the older practitioner, and exceedingly instructive to the beginner. Many fine points of diagnosis are mentioned here and there which can only usually be learned by following some great teacher in his clinical rounds. The chapter on the "Causes of Abnormal Positions of the Head" and the one on the "Diagnosis of Abdominal Tumors" teem with interesting facts backed up by characteristic cases.

The work is handsomely bound, well illustrated, and easy reading, though at times the translator slips into the Germanic way of putting works backward.

J. H.

THE ARTIFICIAL FEEDING OF INFANTS, Including a Critical Review of the Literature of the Subject. By Charles J. Judson, M.D. Philadelphia: J. B. Lippincott Company. 1902.

The aim of this work is to place before the medical profession a thorough and reliable account of the principles and methods of artificial feeding in vogue at the present day. Most of the articles of importance which have appeared in the periodicals and text-books for the past eight years have been abstracted, so that the treatise may justly claim to be an authoritative statement of the leading pediatricists of Europe and America. It is just the thing for the busy physician who has the time only for a hasty general review of the subject. The book is concise without being intricate, and comprehensive without being too minute. The methods for home modification, the composition of cow's and mother's milk, bacteriology, sterilization, and pasteurization are given due consideration.

The book is well gotten up, the printing and binding being first-class.

J. L. H.

A LABORATORY HAND-BOOK OF URINE ANALYSIS AND PHYSIOLOGICAL CHEMISTRY. By Charles A. L. Wolf, B.A., M.D. Philadelphia and London: W. B. Saunders & Co. 1901.

This book in a very simple and satisfactory form describes all the tests of value which the student or practitioner will be called upon to use in the clinical laboratory.

"The aim has been to give as few tests as possible, and these to be chosen for their suitability to purely clinical needs."

It is essentially a student's manual, and should prove of real value in the curriculum of the third and fourth years of our medical schools.

MANUAL OF CHILDBED NURSING, WITH NOTES ON INFANT FEEDING. By Charles Jewett, A.M., M.D., Sc.D., Professor of Obstetrics and Diseases of Women in the Long Island College Hospital. New York: E. B. Trent & Co. 1902.

This is the fifth edition of a handy and well-arranged little book of memoranda for obstetric nurses. It covers in seven short chapters the nurse's duties in pregnancy, labor, and the puerperium, and has three chapters on the care of the child.

Obituary.

AARON FRIEDENWALD.

DR. AARON FRIEDENWALD, professor of diseases of the eye and ear in the College of Physicians and Surgeons, Baltimore, died at an early hour on Tuesday, August 26.

Dr. Friedenwald had but recently returned from a European trip undertaken on account of failing health. Growing worse while abroad, he suddenly determined to return to Baltimore. He had cancer of the stomach, with, as it turned out, metastases to other organs. An operation was undertaken by Drs. John W. Chambers and John M. T. Finney on Wednesday, August 20, but the conditions found were such as to preclude any hope of material improvement.

Dr. Friedenwald was the son of the late Jonas Friedenwald, the well-known Jewish philanthropist of this city, and was born December 20, 1836. He studied medicine under the preceptorship of Nathan R. Smith, graduating in medicine at the University of Maryland in 1860. He afterwards pursued special studies in Berlin, Prague, Vienna, and Paris. Since 1862 he has been in active practice in Baltimore, and since 1873 was professor of ophthalmology and otology in the College of Physicians and Surgeons.

In 1889 he was elected president of the Medical and Chirurgical Faculty, and he was the first president of the Maryland Ophthalmological Society.

Dr. Friedenwald played an influential part in raising the standard of medical education in this country. In philanthropic work he was always active, and was a leader in the affairs of his race and religion. At the time of his death he was president of the McCulloh Street Temple, a director of the Jewish Theological Seminary in New York, vice-president of the Jewish Publication Society, a director of the Hebrew Orphan Asylum, and president of the local branch of the Alliance Israelite Universelle.

Of his four sons, two are well-known physicians—Dr. Harry Friedenwald, associate professor of ophthalmology and otology, and Dr. Julius Friedenwald, professor of diseases of the stomach, in the College of Physicians and Surgeons.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor*.

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ROBERT REULING, M.D.

HUGH H. YOUNG, M.D.
JOSE L. HIRSH, M.D.

BALTIMORE, SEPTEMBER, 1902

THE "SPOTTED FEVER" OF MONTANA.

IN the *Journal of the American Medical Association* for July 19 appears a paper by L. B. Wilson and W. M. Chowning descriptive of a new disease of very fatal character, apparently transmitted from animals to man by the agency of an insect. An unusual number of fatalities from this disease attracted the attention of the State Board of Health of Montana, and the authors, both connected with the bacteriological laboratories of the University of Minnesota, were engaged to make an investigation.

The chief clinical characteristic of the disease is the peculiar rash which gave origin to the name "spotted fever." This eruption appears between the second and fifth days after the initial chill, beginning at the wrists or ankles, and spreading over the entire body, the abdomen being involved last. Death usually occurs between the sixth and fourteenth days, rarely as early as the third day or as late as the eighteenth day. The fatality in marked cases is between 70 and 80 per cent. The important memoranda which are at the base of the investigation are:

"1. The disease is definitely limited in locality, being sharply cut off from the eastern side of the valley by the Bitter Root river.

"2. It is confined to one season of the year, namely, from March to July.

"3. It attacks alike patients of any age and either sex.

"4. All the symptoms and lesions indicate that the disease is due to a specific infection.

"5. There is not even a suspicion of its ever having been transferred directly from one human being to another, except in one instance, in which an infant, born while the mother was suffering from the disease, died four days later with marked purpura.

"6. In no instance have two or more persons with the same food or water supply been stricken with the disease within a short time of each other.

"7. There are no symptoms or lesions which point to the digestive tract, respiratory or genito-urinary organs as the avenue of infection.

"8. In all the cases examined by the writers there were small wounds of the skin, said to have been made by the bites of ticks. In nine of the cases this history was definite and positive. In one, a child, no history of tick bites was obtained, though the skin wounds were present, and ticks were numerous about the premises where the child had been playing. In three of the cases there was a history of a single severe bite two, three, and five days, respectively, before the onset of symptoms."

In the blood of nine out of ten patients examined the authors found an

intracellular parasite which they were able to keep alive and under observation, in one instance as long as five and one-half hours.

The parasite is not so abundantly found in the fresh blood during life as in the congested capillaries of the tissues removed at autopsy. The parasite is found in fresh blood once in 400 or 500 red cells. In one instance on the seventh day of illness it was found in nearly every field.

The organism resembles Theobald Smith's parasite of Texas fever, though the new organism is larger. Suspicion was directed to the tick as the intermediary host, and on this point the authors say:

"1. Ticks are known to appear in the spring as soon as the snow melts from the sunny exposures—in other words, in the Bitter Root valley, as early as February 15. They are, however, chilled and inactive until the latter part of March or first of April. In relation to this, scattered cases of spotted fever appear during the latter part of March and first of April, and are most numerous during May and June.

"2. Ticks become less numerous about the middle of June, and finally disappear about the middle of July. In connection with this it should be noted that cases of spotted fever become less and less numerous from the middle of June to the middle of July, after the 20th of which month no cases have been observed.

"3. The occurrence of spotted fever in isolated cases in a region sharply limited on one side by a river would indicate the conveyance of the germ to man (if by any animal whatsoever) by a temporary parasitic animal which travels slowly and not widely, and which is not carried far by the wind, etc. The tick answers this description.

"4. All hematozoa of warm-blooded animals of which the life-circle is now known pass, at least, one phase of their development within the body of some host (usually an insect or arachnid) other than the one whose blood-cells they invade. This is probably true of the hematozoon of 'spotted fever.'

"5. The malarial organism, the hematozoon which in man most nearly resembles that of spotted fever, is conveyed to man by the bite of an insect. The organism of Texas fever in cattle, which is apparently a very close relative of the germ causing spotted fever, is conveyed to cattle through the bite of ticks.

"6. All of the patients, eleven, coming under observation during this investigation had been bitten by ticks. In three cases a history was given of a single severe tick bite two, three, and five days, respectively, before the onset of the disease.

"7. There is apparently no other insect, arachnid or other biting creature within the infected locality which would fulfil the conditions indicated in the above outline as does the tick. For instance, it may be noted that the mosquitoes probably do not appear until a later date than that on which the earliest cases of 'spotted fever' have developed, while they remain for several weeks after the spotted fever cases. Bedbugs and fleas are present through the year, and from their persistent activity would probably affect more than one individual in a family were they the carriers of the disease."

Since there is no reason whatever for believing that the infection is ever transmitted from man to man, the authors were led to look for the ordinary

habitat of the parasite in the blood of some warm-blooded animal. They selected the gopher or ground squirrel as the animal of that region best fulfilling the conditions.

The sequel is found in a communication of Surgeon J. O. Cobb to the surgeon-general of the United States Marine Hospital and Public Health Service, published in *Public Health Reports* for August 15. The gopher of Bitter Root valley is infested with ticks, and among a large number of these animals examined some were found to have the organism in their blood. All such animals were captured on the west side of the valley. Parasites were not found in the blood of any gopher caught on the east side of the valley. Another communication from Drs. Wilson and Chowning will shortly be published, and will be awaited with great interest.

An important feature of this investigation is the demonstration of a chronic infection of gophers with the new parasite. Kolle has shown that a similar chronic infection of rats with bubonic plague occurs, and may easily be made out in laboratory rats, the bacilli being recoverable months after the original inoculation was made.

A mild acute infection of plague is well known, and the possible existence of a mild infection of man with the gopher parasite is hinted at by Wilson and Chowning.

The occurrence among rodents of chronic infections transmissible to man in acute and fatal forms is of great significance from the point of view of public health.

THE SITTING ROOSTER.

THE opinion has from time immemorial been freely expressed, no one contradicting, that if the male half of humanity had to incubate and brood every other reproductive effort, the number of children born to each couple would not exceed one and a small fraction.

Brought to the test, this ancient dictum has received a shock at the very first experiment, for the male incubator behaved very nearly as a mother should, expressing his satisfaction in the living offspring. A Kentucky farmer, named Filson, was deprived of his ability to earn bread by reason of an attack of fever. His resourceful wife determined that he should have feminine employment, and placed about four dozen hen eggs in his bed. He cheerfully undertook the incubation of these eggs, notwithstanding they were not his very own, but borrowed for the occasion. In twenty-one days forty-four chickens were hatched. The wife fluttered about the bed in the awkward solicitous way that is so characteristic of a father, while in the pale but satisfied aspect of the husband maternal pride was hardly concealed for want of a shave. It was not apparently a very hazardous experiment, except to the eggs.

One word of warning: It is often dangerous to interfere with nature's order. This experiment is too satisfactory. If it should be found that, under such an exchange of functions, the pains and responsibilities are as well compensated as they are under the original plan, the results would be diametrically opposite to what the world, in its ignorant misconception, supposes. Instead of a 50 per cent. fall in the birth-rate, reproductive energy might actually double. In the short time at its disposal such an outcome would find the world wholly unprepared.

Correspondence.

MR. EDITOR—Allow me, through your JOURNAL, to call the attention of the graduates and friends of the University of Maryland to the earnest effort now being made to provide that school with a permanent endowment fund. We have now an independent board of trustees, incorporated under the laws of the State and self-perpetuating, responsible to no one but itself and the trust which it has undertaken. Of the nine members of this board, four are *non-medical* men, and three others are in no way connected with the school. Every cent contributed to this fund is secured by law, and cannot be touched; only the interest of the fund can be used in the discretion of the board for the benefit of the school. What more would the friends of the school desire? Brother alumni, let us unite in the upbuilding of our old and venerable Alma Mater! Fourteen hundred dollars are already in hand, the gifts of Osler, Ashby, Mitchell, Winslow, Lee, Chew, Stone, Hemmeter and other generous friends. The centennial is approaching; let us rally to its support and make a new era in its long and honorable career, that it may start forth in the second century of its existence strengthened and invigorated by a permanent fund ample for all its needs!

Yours fraternally,

EUGENE F. CORDELL, M.D.,
Chairman Endowment Committee.

Medical Items.

A STATUE to Louis Pasteur was unveiled on August 3 at his birthplace, Dole, Jura.

THE new professor of anatomy at the University of Milan is a woman, Dr. Rena Mastio.

DR. EDWARD J. BERNSTEIN has removed his office from 800 Madison avenue to 1511 Madison avenue.

DR. FRANCIS T. MILES is now recovering from his severe illness. He has been for some weeks at Atlantic City.

DR. J. EDWARD BENSON of Cockeysville, Baltimore county, was thrown from his buggy on August 6 and seriously injured.

DR. HENRY DARLING of Washington, a graduate of the University of Maryland, 1867, died on August 7, aged fifty-eight years.

DR. JAMES ALLEN HIPPLE of Golden, Col., (Baltimore Medical College, 1902) died of typhoid fever on August 3, aged thirty years.

THE present prevalence of typhoid fever in Baltimore is somewhat unusual. Among those now sick with the disease are Dr. Ellis Garce and Dr. Page Edmunds.

THE Cincinnati College of Medicine and Surgery will not reopen this fall. The reason assigned is the great falling off in attendance since the entrance requirements became more rigid. This school had been in existence since 1851.

DR. CARL GERHARDT, an authority on diseases of the lungs and on pediatrics, died in Baden on July 21. Dr. Gerhardt was a medical attendant of the Crown Prince Frederick, and detected the laryngeal growth which eventually killed his distinguished patient.

ON a recent trip of the Kaiser Wilhelm der Grosse one of the passengers, ill with appendicitis, was under the treatment of Drs. Wm. T. Bull and Roswell Park. While forty miles out at sea a message was sent by wireless telegraphy to have an ambulance at the dock.

EDOARDO PORRO, professor of obstetrics at Milan, died on July 19, aged sixty. His most famous contribution to the science of obstetrics was made in 1876, the Porro-Cesarean operation. The primary cause of his death was an infection received while operating.

A PHYSICIAN in Missouri was recently brought to task for swearing at a telephone operator. He was fined \$5. The record does not state whether she gave him the wrong number, or called him by mistake, or buzzed him for a fly doctor, or what sort of Missouri she inflicted.

It is reported that the health of Prof. Randalph Virchow is again failing. He appeared to recover from the accident which befell him in last January, but it is said that he has sustained another fall, and in view of his great age, his present condition is regarded as critical.

ICE is to be mined in Arizona. Quantities of ice are found in caves near Flagstaff in that State. The intense heat of certain seasons does not sensibly diminish the supply, which, it is believed, will meet the demands of neighboring towns and lumber camps, and of the railroads of New Mexico and Northern Arizona.

At the recent annual meeting of the Baltimore County Medical Association the following officers were elected for the ensuing year: President, Dr. H. Louis Naylor; vice-president, Dr. Jas. H. Jarrett; treasurer, Dr. Henry S. Jarrett; recording secretary, Dr. Frank R. Rich; corresponding secretary, Dr. R. C. Massenberg.

THE smallpox record of the State for August was one case in Somerset county and one in Dorchester. The only case in Baltimore was found on August 27. On that date four cases were reported at Williamsport in Washington county. At the time of going to press this report had not been verified.

PROF. WILLIAM OSLER of Johns Hopkins University, Baltimore, will deliver a memorial address on "William Beaumont, the First and Greatest American Physiologist," under the auspices of the St. Louis Medical Society of Missouri. The lecture takes place at the Odeon on Saturday, October 4, at 8 o'clock P. M.

THE eyes of the country will be on Cleveland and its unique health department. Smallpox is still present in that city to considerable amount, and since the commissioner of health and the mayor agree that smallpox can be put out without the aid of vaccination, there will be a good chance to show how the thing can be done. If the disease can be extinguished, one may fairly ask why it has not been done.

THE extreme gravity of the plague situation in the Punjab has led to the proposition of a gigantic scheme to inoculate some 6,000,000 people during the next cold weather. The estimated cost will be about \$270,000. The method of Hoffkine will be followed. The frightful history of the past three years is believed to have opened the minds of the people to the advantage of a wholesale inoculation on this unprecedented scale.

A GROUP of medical students with their instructors were recently assaulted in New York by a mob of ignorant people, who believed that a woman in the neighborhood had been improperly treated. The woman in question had gone into labor while severely ill with pneumonia. Some students had been sent from the Lying-In Hospital to attend her, and they had sent for

their instructors. The woman died. The people of the neighborhood became enraged under the impression that only medical students had attended her.

PROF. WM. H. WELCH's chair in the Johns Hopkins Medical School is now called the "Boxley Professorship of Pathology," after Dr. Henry Willis Boxley, who died in Baltimore on March 13, 1876, leaving a sum to found such a chair. Dr. Boxley was born in Baltimore in 1803, and graduated in medicine at the University of Maryland in 1824. He was professor of anatomy and physiology in the university from 1837 to 1839, and of surgery in Washington University (now College of Physicians and Surgeons) from 1842 to 1847. He was later professor of anatomy and surgery in the Medical College of Ohio. He spent the years 1866 to 1875 in Europe.

ACCORDING to *Medical News*, a Philadelphia oculist of wide fame was recently traveling homeward from Pittsburg when he noticed a fellow-passenger, a lady, in evident distress with her eyes. Thinking that she was suffering from the presence of a cinder or other foreign body, he went to her seat and offered his services, saying that he was an oculist. She replied, quite haughtily, that she could wait until she reached Philadelphia, when she expected to consult a specialist "of some repute." The doctor humbly asked her pardon and resumed his seat. Within a few minutes of reaching his office the same young lady walked into his consulting-room.

CONTAGIOUS eye diseases in school children have attracted the attention of the Board of Health of New York city. Dr. Lederle appointed twelve eye specialists to investigate the prevalence of such diseases in the schools. A total number of 55,470 children were examined in thirty-six schools, and 12 per cent., or 6670 children, were found suffering with contagious eye disease. Severe trachoma was found in 2328 cases. The city superintendent of the public schools thinks that the report is exaggerated, and that the specialists have erred in diagnosis. The superintendent also thinks that specialists for this work should have been appointed by the Board of Education, and not the Board of Health.

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ADDISON'S DISEASE, WITH THE AID OF TUBERCULIN IN DIAGNOSIS.

By Morris C. Robins, M.D.,

Associate Professor of Clinical Medicine, University of Maryland, Baltimore.

CASES of Addison's disease are sufficiently rare to be recorded, and any addition to our knowledge regarding the diagnosis of this peculiar condition must be of interest.

Since the first description of Dr. Thomas Addison (in 1855) of Guy's Hospital the disease has borne his name. Little has been added since then to throw any light upon the disease, excepting the pathological condition of the adrenal glands. Addison in his original memoir says that the condition was "stumbled" upon by himself. Dr. Auld of Glasgow makes some original observations based upon his researches upon the function of the gland, but nothing is particularly known regarding the function of these glands, nor can one help admitting that grave pathological conditions may be found in the adrenals without the peculiar pigmentary changes of the skin. The names of bronzed-skin disease and melasma suprarenale are also given to the disease.

The symptoms first described by Addison as the characteristic features of this morbid state are "anemia, general languor and debility, remarkable feebleness of the heart's action, irritability of stomach, and a peculiar change in the color of the skin, occurring in connection with a diseased condition of the suprarenal capsules." This could in reality be little improved upon, even after this lapse of nearly fifty years. It occurs at all ages, though more frequently in the male, and generally in the prime of life.

We know little of the early pathological changes in the disease of the adrenals. Later changes are almost constantly connected with a tubercular condition, either primary or secondary to condition elsewhere in the body. It is generally assumed to be a

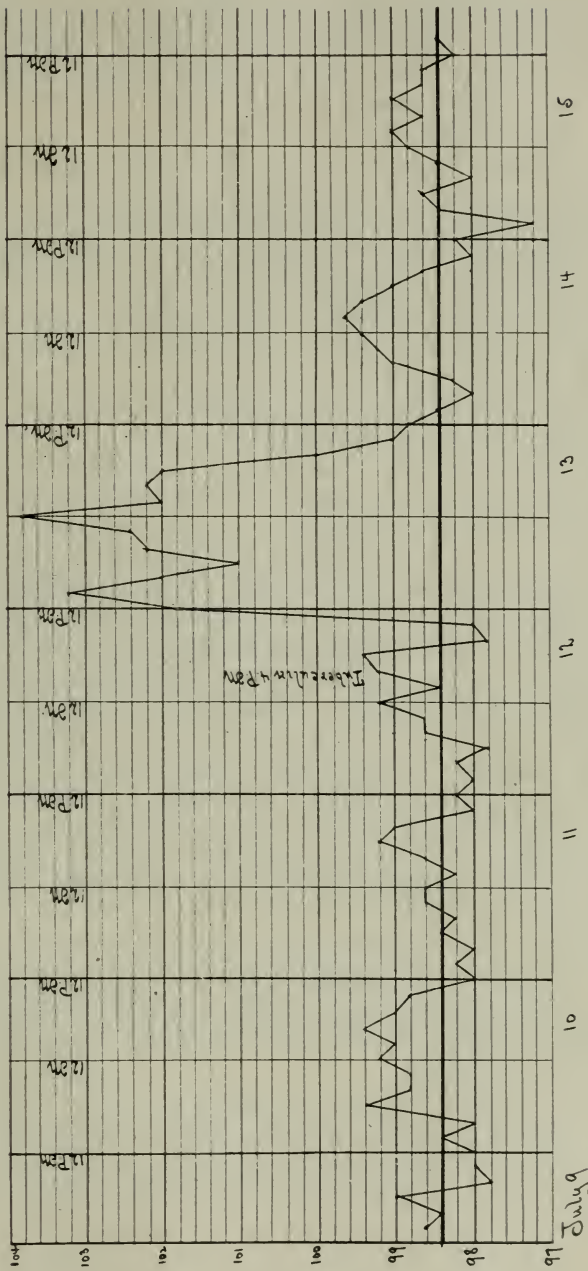
tuberculosis of these organs, but this is not altogether admitted. The symptoms are well shown in the case reported.

E. H., white, male, married, age fifty-seven years, by occupation a chef, was admitted to Bay View Asylum June 18, 1902. Family history negative. Past history: Chancroid (?) at fifteen years; measles, mumps, typhoid fever and yellow fever after he was twenty-five years of age.

Present history: In September, 1901, he noticed that in boarding a car, his strength failed him, and that he was obliged to sit down, and was sick for some time. He was afterwards short of breath on the least exertion; had a bad cough, and could only walk short distances, and also vomited for several months. He has had to arise at short intervals at night to urinate.

On close inquiry he says that he had a very light complexion until about two years ago, when he had what he terms yellow jaundice, but his friends kept calling his attention to how dark he was becoming. In September, 1901, he had the attack that I have recounted, when he says he became pale again. The latter part of 1901 he was at the City Hospital, where a diagnosis was made of pernicious anemia after a blood-count.

In February, 1902, he says he was taking large doses of arsenic. About six weeks after he began taking arsenic he noticed his skin becoming clearer. About two months later he noticed nausea, and he vomited frequently, but his appetite remained good. His emaciation steadily continued. About this time he came to Bay View Asylum with well-marked neuritis (probably arsenical) and nephritis. His statements regarding pernicious anemia were substantiated by physicians of the City Hospital. When my attention was first called to him I was struck by his pigmented condition, and started to investigate the case closely. The patient has a well-nourished look. Pupils react normally. Eyes bright. Sclerotics show a pearly tint; arcus senilis. Face puffed. He looks prematurely old. Hair and beard quite gray. Upper teeth absent, eight lower front teeth remaining. Gums tumid and ugly-looking, bleeding on pressure, and foul in condition. Teeth much worn. Soft palate golden yellow in hue. Thorax well shaped; lower submammary regions bulged. Physical signs negative. Liver—dullness normal. Abdomen full and slightly resonant. Spleen not palpable. Patient lies on back, with decided foot-and-wrist drop, unable to move limbs but slightly. Arms and legs swollen. Skin markedly hyperesthetic. Atrophy of muscles of forearm and thighs. Shins clean. Patellar reflexes absent, and his bladder irritable, and he was able to hold his water but for a short time, water dribbling away. His general appearance is the most striking. He resembles a mulatto in color, though claiming to have had



TWO-HOUR CHART OF DR. ROBINS' CASE OF ADDISON'S DISEASE.

originally a very fair complexion. Whole body is discolored, and on the back and parts where clothes constrict shows a light mahogany tint. Anterior surfaces of arms and legs showed great discoloration, color being a muddy brown. Scrotum very dark. Body has a deeper tint than face. Posterior surfaces deeper than anterior.

Blood-count, June 23, 1902: Red-blood cells, 4,546,875; white-blood cells, 11,200; hemaglobin, 90 per cent.

Differential count: Polymorphonuclear, 69 per cent.; transitional, 1 per cent.; small mononuclear, 21 per cent.; large mononuclear, 7 per cent.; eosinophiles, 2 per cent.

Stomach contents showed: Total acidity, 8; free HCl, absent; lactic acid, present; yeast fungi, present; starch granules, present; bacteria, present.

Urine showed the presence of albumen, but no sugar. Casts of all varieties present in abundance.

I felt that arsenic as a causative factor in the skin discoloration could be thrown out, since he had the melasma a long time before he had taken the drug.

Thinking I was probably dealing with a case of Addison's disease, I determined to use tuberculin, this test having been recently suggested as a help in the diagnosis of this disease.

From July 9, 1902, the temperature was taken every two hours until July 12, and, as can be seen by chart, his temperature was but slightly above normal. Pulse and respiration about normal. July 12, 4.15 P. M., tuberculin injected, at which time temperature was 99 1-5°, pulse 96, respiration 24. No decided change in temperature, pulse or respiration until 10 P. M., when pulse was accelerated to 110, and a slightly chilly sensation was complained of; no sweating; otherwise comfortable. Twelve P. M.: Resting quietly; no unfavorable symptoms; temperature 101.8°.

July 13, 2 A. M.: Temperature 103.2°, pulse 130, respiration 26. The temperature remained high, reaching 103.8° at noon of the 13th (leucocyte count 17,600), temperature gradually returning to normal on the 14th, with also a return to regular pulse and respiration.

Taking the facts into consideration, with the strong reaction of the tuberculin, I think we can safely say that we are dealing with a case of Addison's disease, and that the tuberculin injection is of distinct value in the diagnosis of this peculiar condition.

REPORT OF A CASE OF PROGRESSIVE MUSCULAR ATROPHY (SPINAL), WITH MENTAL SYMPTOMS.

By R. Edward Garrett, M.D.,

Senior Assistant Physician, Maryland Hospital for the Insane, Catonsville.

MRS. C., the subject of this report, has been a patient at the Maryland Hospital for the Insane for the past seven months.

On admission she was somewhat emaciated, and, while a few of the symptoms described below were present, they were not sufficiently well marked to justify a positive diagnosis, but have since gradually progressed, until at the present writing the rather typical picture seen by the accompanying illustration presents itself.

She is fifty-three years old. The heart and lungs are normal, and, with the exception of a chronic nephritis, no organic disease can be demonstrated.

There is no hereditary predisposition to the affection, and no luetic nor rheumatic history. Slight transitory pains are complained of about the chest and shoulders.

The emaciation, which when first seen was only moderate, has now become most pronounced. Some of the muscles have almost entirely disappeared, and can only with difficulty be located.

The case seems to be of the so-called "upper-arm type," as it is here that the trouble first appeared, and consequently at present is most apparent.

There is marked atrophy of the muscles of the chest, shoulders, arms, and, in fact, of the entire trunk.

The pectorales, trapezii, and latissimi dorsi are flattened out into ribbon-like bands not much thicker than the normal platysma myoides. The edges of these muscles can be picked up, and, by palpation, estimated to be less than one centimeter in thickness.

The deltoids and biceps can be found only after careful search.

The muscles of the back, abdomen and hips are greatly affected, and the gluteals and the muscles of the thighs are much reduced. The face and the flexors and extensors of the forearm are only slightly affected. The legs, as usual, have escaped, and show no perceptible change.

There is considerable edema of the feet and ankles.

The protruding of the head forward and the decided kyphosis give the characteristic deformed appearance.

There is considerable loss of power of the affected muscles, but no absolute paralysis. Sensation is not impaired. There is no speech disturbance, nor loss of control of the sphincters. The patellar reflexes are absent; the gait is normal, and free from any spastic condition.



DR. GARRETT'S CASE OF PROGRESSIVE MUSCULAR ATROPHY.



DR. GARRETT'S CASE OF PROGRESSIVE MUSCULAR ATROPHY.

The ophthalmoscope shows no change in the optic nerve. The pupils are three millimeters, equal, regular, and reactive to light and accommodation. There are no bulbar symptoms. It has never been possible to demonstrate any fibrillary tremor, but at intervals choreiform movements of the upper and lower extremities have been observed.

The mental symptoms are most likely only a part of the general disease, being probably due to extension of the spinal lesion to the brain, and should possibly be classified under the head of the organic dementias.

She has become feeble-minded, and is forgetful and incapable of attending to her household duties. Her vocabulary has been reduced to a few words. She has no idea of time, mental impressions are greatly retarded, and there is an inability to concentrate the attention. She is lacking in will power, and can no longer depend on herself for the performance of the simplest routine acts of daily life. She is of the average height, but weighs only fifty-nine pounds.

My thanks are due to Dr. J. Percy Wade for the privilege of reporting the case.

A REMARKABLE CASE OF EARLY AND CONTINUED MENSTRUATION.

By George Wells, M.D.,

Annapolis, Md.

I HAVE a little girl patient, now seven years of age, who has menstruated regularly (nearly every twenty-eight days) since she was *eighteen months* old. When her mother first consulted me I made a careful and thorough examination, and although the discharge had the characteristic periodicity of the menstrual flow, the tender age of the child at first led me to believe that it was due to other causes high up in the vagina. But, failing to discover the cause, I have held her under close observation from that time to the present, and as the bloody discharge has occurred monthly throughout this period of six years, and as the child, although not robust, shows indisputable evidence of having reached puberty—viz., the mons veneris and the labia majora being thinly covered with long hairs, the mammae as well developed as in the majority of adult women, the areola being well defined, and the facial expression thoughtful and matured—I have reached the irresistible conclusion that it is a case of precocious menstruation, and I write these few lines to ask my professional brothers if they have ever seen or heard of a similar case. I have been actively engaged in the practice of medicine since 1868, and this is the only case of the kind that has come under my observation.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

TUBERCULOSIS.

De Grazia ("Serum Diagnosis in Pulmonary Tuberculosis," *Berliner klin. Wochenschrift*, 1902, Nos. 11 and 12) opposes the views of the French school that a true serum diagnosis of tuberculosis is possible, for he finds that the cultures of tubercle bacilli are not only agglutinated by the serum of tuberculous individuals, but also by the serum of completely normal individuals, or by that of those suffering with other diseases.

Furthermore, De Grazia found that the serum of tuberculous individuals energetically agglutinated other bacteria, such as the diphtheria, typhoid, cholera and colon bacilli, and the staphylococcus pyogenes aureus, and therefore denies the right of anyone to speak of a specific agglutinating reaction in tuberculosis. He also found that the degree of the reaction bore absolutely no relation to the intensity or the extent of the infection.

Donath (*Wiener klin. Rundschau*, 1901, No. 41) agrees with Arloing and Courmont that the agglutinating ability of the cerebro-spinal fluid in meningeal tuberculosis is very slight and not constant towards the tubercle bacillus, and that for that reason no reliance should be placed upon it as an aid to clinical diagnosis.

Ruitinga (Dissertation, 1901) performed a series of experiments upon the serum diagnosis of tuberculosis, using from 10 to 12-day-old cultures of the bacillus, made from a stock culture furnished by Arloing. The examinations were made during a period of eight hours in dilutions of 1 : 5, 1 : 10, and 1 : 20.

The serum of sixty patients with or without demonstrable tuberculosis and of three normal and six tuberculous cows was tested. In the case of patients with pulmonary tuberculosis and with tubercle bacilli in their sputum there were four negative, nine positive results; the reaction was not obtained in lupus; the character of the reaction did not bear the slightest relation to the course or character of the disease, while in the non-tuberculous patients the reaction was positive eleven times, negative nine times. For these reasons Ruitinga feels that the reaction cannot be recommended.

Beck and Rabinowitsch ("Further Observation Upon the Serum Reaction in Tuberculosis," *Deutscher med. Wochenschrift*, 1902, No. 10) in this article give the results of their investigation of the

blood of seventy-eight freshly-slaughtered cattle, partly healthy, partly tuberculous as regards the agglutinating properties of the serum. The method used was that originally devised by Arloing and Courmont, with which these last-mentioned investigators obtained such positive results.

Beck's and Rabinowitsch's results were absolutely opposed to those of the French investigators, for positive-results were obtained in healthy animals, in tuberculous animals, and in those suffering from other diseases. This and the results of their earlier investigations upon human beings (*Centralblatt f. inn. Med.*, 1900, No. 32) make them conclude that the reaction is absolutely valueless of the diagnosis of tuberculosis.

De Grazia (*Gazz. degli ospedali*, 1901, No. 108), working in the Institute for Tuberculosis of Maragliano, comes to the same conclusions as Beck and Rabinowitsch, *i. e.*, that the reaction is not specific for tuberculosis, nor has it any diagnostic value.

Maragliano ("The Dosage and Use of Tuberculous Antitoxin," *Gazz. degli ospedali*, 1901, No. 151) furnishes his tuberculous antitoxin now in tubes holding 1, 5, and 10 c. cm., respectively. In the slowly progressive cases, with no or very slight fever, he recommends 1 c. cm. every two days; if there is fever, he recommends the same method of treatment; but if after five doses the fever is not diminished, he gives 5 c. cm. every two days, and if again after five days there is no effect upon the temperature, 10 c. cm. are given every two days. If after the use of the antitoxin for a month the disease is not checked, its further employment is useless. Its first manifestations are in the favorable results it has upon the tuberculous toxemia, dyspepsia, anemia, night sweats, and fever; later an increase in weight is noted, while still later the local condition in the lungs shows improvement.

From a long experience with his antitoxin the author concludes that if the symptoms are not influenced by the serum, either a secondary infection has entered in, or the diseased organism is not able to respond to the stimulus of the injected antitoxin. There are no contra-indications to its use, although occasionally erythema or urticaria follows the injection.

Figari and Lattes ("Serotherapy in Pulmonary Tuberculosis," *Gazz. degli ospedali*, 1901, No. 117).—In this article are to be found the results of these investigators' use of Maragliano's serum in one of the hospitals for consumptives. One hundred and seventy-one cases in all were treated between the 1st of January, 1900, and the 1st of June, 1901. Of these 171 cases, 44 were completely cured, 76 benefited, 39 remained stationary, 12 became worse, and none died.

Nothing new is added by the authors as to the exact mode of action of this serum. According to them, the toxicity of the blood

is lessened and the circulating toxins are neutralized. From the anti-toxic action of the serum the resistance of the body is increased, and thus we have a secondary bactericidal effect.

Mazzotti ("The Diagnostic Value of Tuberculin," *Clin. med. italiana*, 1901, No. 9), from a six-years' use of tuberculin in several hundred cases, believes it has marked diagnostic use. However, on the one hand, typhoid convalescents frequently give a positive reaction without tuberculosis being present, and furthermore, the question whether all cases of chlorosis which react are tuberculous has not been completely settled; also advanced tuberculosis may frequently show no reaction. Mazzotti especially recommends the reactions to surgeons after the removal of tuberculous deposits to see whether there is any tuberculosis elsewhere. The extent of the reaction bears no relationship to the extent or the further course of the process.

Romani ("The Tuberculin Reaction in Convalescents from Sero-fibrinous Pleurisy," *Gazz. degli ospedali*, 1902, No. 15) has tested the tuberculin reaction, using Koch's old tuberculin in all cases of serofibrinous pleurisy with which he has met, including cases secondary to typhoid fever, rheumatism, pneumonia, and nephritis. Fourteen cases reacted positively, and were afterwards shown to be tuberculous, and Romani believes that tuberculin is of great value in determining the diagnosis in cases of slight tuberculous lesions of the lungs without clinical symptoms.

Goetsch ("The Treatment of Pulmonary Tuberculosis with Tuberculin," *Deutscher med. Wochenschrift*, 1901, No. 25) describes the treatment with tuberculin of pulmonary tuberculosis as practiced by him under the advice of Koch during the past ten years. Of 175 cases, 125 were cured, while the other 50 were benefited, but were not cured. Perhaps these results are better understood when it is stated that only in 40 per cent. of the cases tubercle bacilli were found. The method employed was to determine the maximum dose which would not be associated with an increase of temperature, and then to gradually increase the dose, carefully watching the temperature reaction.

Hoke ("The Treatment of Pulmonary Tuberculosis with Ponzio's Tuberculin," *Zeitschrift für Heilkunde*, 1901, parts 8 and 9).—Ponzio's tuberculin was used in eight cases, all of which were most favorable prognostically, by Hoke, in Von Jaksch's Clinic. Absolutely no improvement followed its use, from which Hoke concludes that it is not to be recommended in the treatment of tuberculosis.

PNEUMONIA.

Huber ("Agglutination of the Pneumococcus," *Centralblatt für innere Medicin*, 1902, No. 17) describes an interest-

ing method by means of which the agglutination test may be applied to pneumococcus infections. The test, however, is practically the same as that devised by Besançon and Grignon. Instead of the usual method of testing bouillon cultures of the pneumococcus with the serum from the suspected patient, the procedure is as follows: The pneumococcus is transplanted in tubes containing the patient's serum, carefully separated from the red-blood corpuscles by centrifugalization.

In normal human or animal serum the pneumococci at a temperature of from 35.5° C. to 37° C. develop as a diffuse clouding of the serum, but in the case of serum from a patient infected with the pneumococcus the serum remains perfectly clear, while on the bottom of the tube is seen a ball-like mass or a membrane made up of the agglutinated cocci. This mass may be so firm that even shaking will not break it up. Microscopically, this mass presents the usual appearance of agglutinated bacteria. The reaction is most marked near the time of the crisis. The earliest day on which Huber obtained the reaction was the fifth, while after the crisis this agglutinating power rapidly disappears, so that ten days after the crisis but a weak reaction is obtainable. Huber tested the reaction with serum from cases of acute articular rheumatism, tonsillitis, and ulcerative endocarditis, but always with negative results, although, of course, a greater number of observations must be made before the specificity of the serum is proven.

While, as a rule, this serum reaction will not be necessary in pneumococcus pneumonia, still it will be of value in the marked forms of pneumonia, especially central pneumonia with typhoid symptoms, and further also in sepsis, endocarditis, meningitis, and other diseases which may be due to an infection with the diplococcus pneumoniae.

This work is of great interest in the fact that it suggests again the possibility that we may obtain a healing serum in pneumonia, as in the majority of cases the formation of the immunizing substances runs parallel to that of the agglutinins.

Daddi and Pesci ("The Agglutination of the Diplococcus," *Rivista Critica di clin. med.*, 1901, No. 21) give the results of their experiments in the agglutination of the diplococcus by the blood serum. In thirty-five cases of lobar pneumonia the blood serum agglutinated positively thirty-one times, and the reaction was absent four times. In these latter cases the serum would not even agglutinate the diplococcus obtained from the sputum of the affected individual. In most of the cases the reaction appeared on the third or fourth day of the disease, and lasted a week or less. In one case the reaction lasted thirty-five days after the crisis.

In various other infections due to the pneumococcus positive results were obtained, as various cases of pleurisy, nephritis, and

tonsillitis, while agglutination never took place in healthy individuals or those suffering from other diseases.

Prochaska ("The Presence of Micro-organisms in the Blood in Pneumonia," *Deutsches Archiv für klin. Med.*, LXX, parts 5 and 6) made cultures in fifty cases of pneumonia, using a large quantity of blood in each case. In all cases were micro-organisms found. In the great majority of cases the pneumococcus was found in pure culture, twice the staphylococcus as well, and twice, in place of the pneumococcus, a peculiar streptococcus, which perhaps is a form related to the pneumococcus. As the usual rule, cultures could be obtained by using a large quantity of blood, the transplantation taking place in bouillon.

Cole ("Blood Cultures in Pneumonia," *Bulletin of the Johns Hopkins Hospital*, June, 1902) has made careful blood cultures, using large quantities of blood in thirty cases of pneumonia, and in nine of these cases pneumococci were obtained in the cultures. All these nine cases ended fatally, and Cole's results therefore do not agree with those of Prochaska, who found the pneumococci in all of the fifty cases examined by him, and who thought that the severity of the disease bore no relation to the finding of the cocci.

PLAGUE.

Cairns ("The Agglutinating Properties of Blood Serum in Cases of Plague," *The Lancet*, June 22, 1901) has tested the agglutinating property of the blood serum of twenty-five patients suffering with bubonic plague, making 300 tests in all. Emulsions of the bacilli in .75 per cent. sodium chloride solution were used. In the early stages of the disease the reaction was often wanting, and thus was not observed in the cases which terminated fatally with great rapidity. The agglutinating tendency increased from the first to the sixth week, remained then constant until the eighth week, after which it gradually diminished. In some cases it was present five months after the disease.

Kolle and Martini (*Deutscher med. Wochenschrift*, 1902, Nos. 1 and 2), in an article in which many interesting points in connection with plague are considered, discuss the curative property of the Yersin and Lustig serum, and also the agglutinating properties of the serum of infected animals and individuals. In regard to the first they have found that it exerts a slight prophylactic effect, and therefore recommend it to be used as a last resort; as regards the second, that agglutination often took place in dilution of 1 to 6000.

Klein (*The Lancet*, February 16, 1901) has employed a similar method in testing the agglutination of the plague bacillus in bubonic plague, using emulsions from the bacilli grown in gelatin in .75 per cent. sodium chloride solution. He obtained positive results in the cases of patients suffering with the disease in dilutions of 1 to 20 and 1 to 40, and also in the case of infected rats, but not in the case of healthy mice and healthy men.

CHOLERA.

Blackstein ("The Use of Chrysoidin in Asiatic Cholera," Contributions to the Science of Medicine, Dedicated to W. H. Welch, Baltimore, *Johns Hopkins Press*, 1901), from the fact that a dilute solution of chrysoidin agglutinates the cholera bacteria in the same manner as the serum of patients sick with cholera, and, besides its agglutinating, has also a bactericidal power, recommends dilute chrysoidin solutions (.1 per cent.) as an internal disinfectant and preventive agent during epidemics of cholera.

LEPROSY.

Sprunk ("The Sero-Diagnosis of Leprosy," *Semaine méd.*, 1898, XVIII, No. 49) claims to have cultivated the bacillus of leprosy (Hansen) upon gelatinized horse's serum, and has found that the blood of patients suffering with leprosy agglutinates this bacillus in a characteristic way.

TETANUS.

Möllers ("Tetanus Antitoxin," *Deutsche med. Wochenschrift*, 1901, No. 47) reports four cases of tetanus treated at the Institute for Infectious Diseases at Berlin, all of which terminated fatally.

All cases were treated with antitoxic serum according to Behring's own directions, *i. e.*, the injections were administered within thirty hours of the appearance of the first symptoms, and at least 100 of Behring's units were administered.

PERTUSSIS.

Silvestri ("Serotherapy in Pertussis," *Gazz. degli ospedali*, 1901, No. 114) has used the blood serum of convalescents from whooping-cough in the treatment of this disease. It was used in seven cases, and 15 to 20 c. cm. of the serum was injected in each. In all cases the effect was strikingly favorable. In two cases, however, the injection had to be repeated.

ANTHRAX.

Vaerst ("Immunization Against Anthrax with Pyocyanase," *Centralblatt für Bakteriologie*, XXXI, p. 293) has experimented upon the immunizing action of pyocyanase against anthrax at the same time as similar experiments were being tried by Emmerich and Löw.

Pyocyanase is obtained by destroying six-weeks-old bouillon cultures of the bacillus pyocyaneus by exposing them to a temperature of 58° C., precipitating them with ammonium sulphate.

Pyocyanase possesses not only a preventive action upon the development of anthrax, but also a bacteriolytic action upon the microbe itself. The injection of pyocyanase made at the same time as that of the anthrax bacilli prevents the development of anthrax in the animal experimented upon, but the repeated preventive inoculation of a watery solution of pyocyanase does not immunize rabbits against the subsequent inoculation with the anthrax bacillus. The serum of animals inoculated with pyocyanase protects other

animals against the fatal dose of the bacteria, while the extracts of the spleen of animals treated with pyocyanase does not protect other animals against anthrax.

MALARIA.

Glogner ("Immunity Against Malaria," *Virchow's Archiv*, CLXII, part 2), in a most carefully-prepared article, opposes Koch's views regarding the inheritance or the acquisition of immunity in malaria, and his figures, which were obtained from the study of a large number of cases of malaria among soldiers, children and natives in Java, all go to show that there is no acquired immunity in this disease. Thus the mortality among the native soldiers is that among the European soldiers, and everywhere in the Malayan Archipelago are found evidences of malaria, which is difficult to explain on Koch's theories; also in the Protestant Orphan Asylum at Samarang, of the children between seven and thirteen years of age, 92.3 per cent. had malaria, and 33 per cent. anemia, while of those between thirteen and thirty-one years of age, 91.7 per cent. had malaria, and 37.5 per cent. had anemia, *i. e.*, there was practically no difference in the prevalence of the disease between the older and the younger children.

Glogner believes that the examination should not be confined to a study of the blood findings alone, but that the presence of an anemia and of an enlarged spleen should also be taken into consideration.

Plehr (Jena: G. Fischer, 1901) gives the results of his studies in Cameroon, where he has been the physician appointed by the German government to pursue such studies.

According to him, most of the inhabitants of equatorial West Africa possess a relative, many an absolute, immunity. Also in the case of Europeans who remain in West Africa, by the constant use of quinine a relative immunity is established.

SEPTICEMIA.

Scharfe ("Antistreptococcus Serum," *Beitr. zur Geburtsh. und Gynakol.*, 1900, III, p. 226) has employed Marmorek's antistreptococcus serum in twenty-three cases of puerperal infection. Scharfe concludes that this treatment has absolutely no influence upon the course of the infection, nor is it useful diagnostically, but in some cases it seems to possess some prognostic value, for cases in which the pulse and temperature fell from twenty-four to thirty-six hours after the injection usually terminated favorably.

Leclainche and Moore ("Serotherapy of Gangrenous Septicemia," *Ann. de l'Inst. Pasteur*, XV, 1, 1901) have prepared a serum immunizing against the vibrio septicus, the serum being prepared by the intravenous injections of cultures of the micro-organism into various animals. This serum possesses protective properties, and, under certain conditions, healing properties as well.

The serum is bactericidal as well as antitoxic, and its properties apparently depend upon the favorable action it exerts upon phagocytosis.

REVIEW IN PATHOLOGY.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

THE CHANGES OCCURRING IN STRIPED MUSCLE IN THE NEIGHBORHOOD OF MALIGNANT TUMORS. F. P. Anzinger. *American Journal of the Medical Sciences*, February, 1902.

The first careful study along the lines of this report was made by Schaeffer in 1886. The material examined by him consisted of three cases of epithelioma of the lip, two cases of carcinoma of the pectoral muscle, three cases of carcinoma of the tongue, and four cases of sarcoma. The special changes observed were distortion of the fibers, atrophy, cloudy swelling, fatty degeneration, waxy changes, nuclear proliferation, small-cell infiltration, and increase of perimysium. Comparing these changes with those found in other conditions, he concluded that the changes produced by tumors were not characteristic, but could be produced by other pathological agencies.

Fujinami in 1900 published the result of his work upon twenty cases of sarcoma and seventeen cases of carcinoma infiltrating muscle. The result of his work is as follows:

1. The invasion of the muscle takes place in different ways, both through the lymph spaces, lymph and blood vessels, and the sarcolemma. The invasion of the sarcolemma by tumor-cells occurs most frequently in the case of carcinoma, and is especially pronounced when the direction of the extension of the tumor is parallel with the axis of the muscle bundle. It is seldom seen in sarcoma, occurring only in the case of the small round-cell variety.

2. The leading changes in the primitive muscle bundle is simple atrophy, nuclear proliferation, and formation of giant cells. These changes, formerly regarded as regenerative in nature, are essentially degenerative, the muscle bundles in a certain stage of retrogression assuming relations similar to those at the beginning of its development.

3. The muscle fibers show varied and irregular changes in thickness and length.

4. The changes produced in the primitive muscle bundle by tumor-cells cannot be referred alone to mechanical pressure, but the changed biological relations of these cells must also produce chemical effects.

5. In the interstitial connective tissue there is often a reaction, as shown by leucocyte infiltration, fibroblastic proliferation, and proliferation of the interna of the vessels. These changes may also affect the muscle bundles. The infiltration of the perimysium is usually much more marked in the periphery of carcinoma than of sarcoma.

6. All forms (sarcolytes, sarcoplasts) arise from the changed muscle bundles, and under certain conditions it is probable that these take part in the formation of tumor-cells.

7. The reaction of muscles to the invasion of a malignant tumor may be very varied according to the local conditions. The muscle does not play a passive rôle simply.

8. There is no absolute difference between the muscle changes produced by sarcoma and carcinoma.

The results reached by Anzinger differ somewhat from those of Fujinami. The materials examined consisted of thirty cases of cancer of breast, fifteen cases of epithelioma of lip, one of cancer of tongue, two secondary carcinomas of the diaphragm, two cases of sarcoma of the pectoral, two fibrosarcomas of the rectus abdominis, two sarcomas of inferior maxillary, one of tibia, and one of general sarcomatosis of skin.

MANNER OF INVASION.

(a) *Carcinoma in Pectoral Muscle*.—Carcinoma of mammary gland advances by direct expansion until the fascia of the pectoral muscle is reached. The latter serves as a barrier to further advance, and the carcinoma usually reaches the muscle through the lymphatics. As the nodules increase in size there is more or less complete destruction of the fibers.

(b) *Epithelioma of Lip*.—The invasion of muscle is favored in this region by the short and irregular muscle fiber and the loose texture of the perimysium. Leucocytic infiltration is usually marked, and it is difficult to separate the leucocytes from the young cancer-cells. Penetration of the sarcolemma tubes by the young cancer-cells also occurs, but is more rare than in case of breast cancer.

SARCOMA.

The invasion of muscle by sarcoma takes place by direct extension in the form of outgrowths of the main mass, penetrating the muscle bundles, extension of cords of cells between the muscle fibers, and also by lymphogenous and hematogenous metastasis. There is always less reaction in the perimysium of muscle invaded by sarcoma than there is in the case of carcinoma. As the proliferation of the tumor progresses there is gradual atrophy and disappearance of the muscle fibers.

Round-cell sarcoma produces a more rapid destruction of muscle than the spindle-cell variety. On the whole the invasion of muscle by carcinoma appears to be chiefly mechanical.

CHANGES IN MUSCLE PRODUCED BY INVADING MALIGNANT TUMOR.

(a) Atrophy is the most constant change. In some cases this atrophy is due to pressure, in others to disturbed chemical or biological relations.

(b) Some authors maintain that some *hypertrophy* of muscle occurs, but this could not be substantiated by Anzinger.

(c) *Morphology*.—Very marked and varied changes in the morphology of the fibers may occur. The parallel arrangement of the fibers may be changed, and the sarcolemma be retracted from muscle substance. Changes in the muscle substance may consist in alterations in the striation, vacuolization (which is an early sign of degeneration), fissuring, waxy degeneration, cloudy swelling, and fatty degeneration. Changes in the muscle nuclei may consist in *proliferation* and change of shape, the nuclei often becoming several times longer than normal.

The sarcolemma often shows degeneration, and there may be infiltration of the cancer-cells into the perimysium.

Leucocytic infiltration is found to some extent in and about all malignant growths. It is marked in cases of epithelioma of the lip, but occurs to a very slight degree about invading cancer of the pectoral. The regeneration of muscle is occasionally seen, especially in lip epithelioma and sarcoma. It was never seen in pectoral carcinoma.

The summary of the changes with reference to the difference between those produced by sarcoma and carcinoma are, briefly, as follows:

Atrophy is more marked in carcinoma. Morphological changes are likewise more marked in carcinoma. The distortion of the fibers seen in carcinoma occurs in sarcoma to a very slight degree. Vacuolization is an early change in both sarcoma and carcinoma. Nuclear proliferations are more common in carcinoma even when other degenerative processes are present. This is in accordance with the fact that the muscle substance in sarcoma shows a much less tendency to retrograde changes. Vascular changes, such as hypertrophy of the endothelium, occurs more commonly in sarcoma. As has already been mentioned, muscle regeneration is much more common in sarcoma.

The changes produced in muscle by invading carcinoma are more marked than those produced by sarcoma, but do not differ essentially in kind. Those produced by sarcoma are chiefly mechanical; those due to carcinoma are mechanical, nutritive, and metabolic. Evidences of toxic action are more marked in the latter than in sarcoma. Carcinoma acts more as an injurious foreign body upon muscle than does sarcoma.

* * *

EXPERIMENTAL INVESTIGATION OF PATHOLOGICAL YEASTS. C. Sternberg. *Beitrag zu Path. Anat.*, Vol. XXXII, Pt. I.

The author discusses in a very able article the entire literature on the subject, especially the work of Busse and Sanfelice. In many cases the pathogenicity of yeasts from various sources has been demonstrated by means of animal experiments. The re-

sults have varied in different cases. While certain yeasts will cause local reaction only at the site of inoculation, others will excite generalized processes—and secondary tumors in various organs—a condition explained differently by various authors.

In order to interpret these questions, especially to decide whether the local and generalized tumors consist of granulation tissue or true tumor formation, Sternberg undertook a series of investigations on various animals and with yeasts from various sources, and in his descriptions attempted to differentiate the yeast organisms from the oidia. He used six varieties of the former (obtained from the sputum, granulation tissue, diphtheritic deposit, stomach contents of a case of carcinoma) and nine of the latter (obtained from carcinoma of ovary, mammary carcinoma, *saccharomyces hominis* Busse).

Rabbits were inoculated by subdural, intravenous, intraperitoneal and subcutaneous injections with each variety; guinea-pigs and white mice subcutaneously and intraperitoneally, and white rats intraperitoneally; besides with a few of the varieties dogs were inoculated by injection into the femoral vein, into the mammary gland, into the testicle, and also into the slightly abraded skin of rabbits and guinea-pigs. For inoculations a suspension of potato cultures in sterilized salt solution was used.

The oidia proved to be especially pathogenic for rabbits when injected intravenously, and caused an acute condition which terminated fatally in two to three days. The organs, especially the kidneys, were studded with nodules, which contained oidia growths. Guinea-pigs were but slightly susceptible; mice, rats, and dogs not at all.

Of the yeast organisms, some were pathogenic to all the animals, others to only certain animals. The blastomycetes caused at times a local infection, again a generalized infection, carried chiefly by the vascular system, rarely by the lymphatics. By the accumulation of yeast organisms large tumor-like masses were formed, from which pure cultures of the organisms were obtained. Acute inflammatory changes with round-cell infiltration were noted. In other cases the yeast infection gave rise to a peculiar granulation tissue, which, by further development and its richness in epithelial cells, simulates very closely true tumor formation. The careful histological examination of this tissue (in the first state, as also after hardening in alcohol, Müller's fluid, Zenker and Flemming's solution) showed with certainty that the author was dealing not with true neoplasms, but with an inflammatory product.

The investigation of Sternberg therefore does not agree with those investigators who claim that yeast organisms may cause tumors, and as far as malignant growths are concerned, neither bacterial nor histological study has shown any etiological factor.

THE DIAGNOSTIC VALUE OF TUBERCULIN. C. W. Wood. *Journal of the American Medical Association*, April 19, 1902.

The author calls attention to the well-recognized necessity of an early diagnosis of tubercular conditions, whether it be localized in the lungs, joints, glands, or elsewhere, and urges upon the profession the more general use of tuberculin as an aid to diagnosis. Its use has largely fallen into disfavor, because it failed to prove a cure, as was hoped when first brought out by Koch. The principal objection urged against its use is its supposed possibility for doing harm. This the author refutes, and in a series of 250 cases, some of which received as much as .015, he failed to observe that the diagnostic doses either accelerated an active process or lighted up a quiescent one. In tubercular meningitis there is, however, a possibility that the local reaction might do damage by increasing the intracranial pressure.

Appended to this paper is a table of 100 cases in which tuberculin has been used for diagnostic purposes. For the diagnostic reaction the following requirements the author holds as essential:

1. The rise in temperature must amount to at least two degrees.
2. It must reach its height between six to twenty-four hours after the injection, except in fibroid cases, when it may be delayed thirty-six hours.

3. It must be accompanied by at least two of the following symptoms: chilliness, headache, nausea, and muscular pains.

Out of the 100 cases, 41 cases gave a reaction meeting these requirements, 36 of which were subsequently proven to be undoubted cases of tuberculosis. Syphilis occasionally gives a reaction similar to tuberculosis, especially active syphilis. Fifty-nine of the 100 cases failed to show a reaction. Of these, only one subsequently showed evidences of tuberculosis.

The rise in temperature in tuberculous cases depends somewhat on the amount of tuberculin injected. The initial dose should be .005. If there is no reaction whatever, it is probable that tuberculosis is not present. If no symptoms have been produced by this small dose, it is more satisfactory and perfectly safe to repeat the injection, using .010. If, with this dose, the reaction does not occur, it may be decided with much certainty that the case is not tuberculosis.

The author concludes that the tuberculin reaction ranks in value with the Widal reaction in typhoid fever. The danger is no greater, and the information obtained is scarcely less reliable.

* * *

OBSERVATIONS ON SERUM EXANTHEMS. R. Von Rittershain. *Jahrbuch f. Kinderkr.*, Vol. V, 1902, p. 542.

This work is the result of the study of 1224 cases injected with serum. Among them a serum exanthem was noted in seventy-nine children, *i. e.*, in 6.4 per cent. of all cases. In two cases the exan-

them was noted twice—that is, the serum was used at an interval of four weeks on account of a recurrent diphtheria. The author found that the exanthem was more liable to follow certain makes of serum. Likewise there was a certain relation between the quantity of serum injected and the occurrence of the rash. Twenty-two of the cases showed a local exanthem. Of these, two appeared after the tenth day, the remainder previous thereto—in one case seven hours after the injection. The duration of same varied from one-half hour to three days. All these exanthems ran on a febrile course and with no complications.

A general exanthem appeared in fifty-nine cases. In two of these cases there was at first a local and later a universal exanthem. In twelve of the cases the exanthem began at the site of inoculation, and spread from this point; in the remaining cases there was no regularity. The exanthem generally appeared on the third, fourth or fifth day after the injection. The so-called late eruption, *i. e.*, after the third or fourth week, never occurred. The duration varied from a few hours to five days. Forty of these latter cases were associated with fever, seven were complicated with pneumonia and otitis. The urticarial form of eruption was associated with intense itching. In none of the cases was a desquamation observed.

Rittershain classified the serum exanthems into—

1. Serum urticaria.
2. Diffuse serum erythema.
3. Scarlet-like exanthem.
4. Morbilliform exanthem.
5. Polymorphous exanthem.

In conclusion, the author calls attention to the fact that the serum exanthems are less often seen, and are much less harmful than in the earlier days of its use.

REVIEW IN HYGIENE.

Under the Supervision of Robert Reuling, M.D., Baltimore.

(Article continued from July number of this Journal.)

STUDIES IN RELATION TO MALARIA. George H. F. Nuttall and Arthur E. Shipley. *The Journal of Hygiene*, Vol. I, No. 1.

All recent authors (Ross, Grassi, etc.) are agreed that an essential generic difference exists between anopheles and culex in regard to the position assumed by the imago when at rest. Whereas in anopheles the proboscis and body are almost in a line, so that the insect has not inaptly been compared to a bradawl (Christy), culex presents a humpbacked appearance, and, apart from this, the axes of the proboscis and body do not correspond, but form an obtuse angle with each other, the proboscis pointing more towards the surface upon which the insect rests. The structure of anopheles is

altogether more slender and graceful, and the legs are considerably longer and more slender than those of *Culex*. In both genera the imago rests either upon four or six legs, the more frequent position being the former, the hind pair being held so that the tarsal joints are elevated, and, especially in *Culex*, curved upwards. In *Anopheles* the tarsi may be slightly turned upwards, but usually they are straightened, the bend being at the femoro-tibial articulation. In a box in which the insects are confined the authors frequently had opportunities of observing a peculiar rotatory motion of the hind legs, whose function would appear to be largely tactile. When approached by a flying insect the hind legs are used to push away the intruder, and when in search of food the hind leg appears not infrequently to guide the insect. This was especially seen when insects were fed upon banana or sugar and milk, for, in walking about, if the tarsal extremity of the hind leg touched upon a moist surface, the insect immediately turned round and proceeded to feed. Judging from their extended position whilst flying, the hind legs doubtless act as balancers. The authors believe that Ross was the first to draw attention to the habit of "standing on the head," which characterizes *Anopheles*, although it is now known that different species behave somewhat differently in this respect, some pointing away at a greater angle from the surface than others. Although denied by some authors, Nuttall and Shipley recognize that the resting position of mosquitoes is of importance, the position being distinctly an aid in recognizing the members of the genus, even if they rest at but slight angles to the surface, and they claim that Waterhouse was right in this terse statement: "Whatever may be the attitude of *Anopheles*, it is all in one line—*Culex* is angular, humpbacked."

Geographical Distribution of Anopheles Maculipennis.—In the paper by Nuttall, Cobbett, and Strangeways-Pigg (*Journal of Hygiene*, Vol. I, p. 5) it is recorded that *Anopheles maculipennis* has been found in England, Wales, Scotland, Ireland, Scandinavia, Germany, Austria, Russia, Holland, Denmark, Italy and the adjacent islands, Canada, and the United States. Howard (p. 113) states that this species is found almost everywhere in the United States, for he has seen specimens from the States of New Hampshire, Connecticut, New York, District of Columbia, Maryland, Virginia, Florida, Texas, Louisiana, Indiana, Illinois, Minnesota, Oregon, whereas Packard recorded its presence in Brunswick, Maine, in 1861-63. Cropper (p. 49, this journal) has found the species in Palestine.

Habitat.—There is reason to believe that *Anopheles* do not, as a rule, wander far from their breeding-places, and consequently the imagines are found near those places which have been described as suitable habitats for the larvae. Some writers have denied that the distribution of certain species of *Anopheles* coincided with that

of human habitations, but this has not been supported by further experience.

Modes of Dissemination.—In regard to the mode of dissemination of mosquitoes—through winds, trains, ships, and streams—the authors record the following facts: Howard says he is incredulous regarding the supposed long flights of mosquitoes, since he has had occasion in many cases to observe that mosquitoes breed close to localities where their breeding-places had not been suspected. Fermi and Lumbao, referring to culicidae, state that the females do not travel far, because they obtain sufficient food from sucking the blood of man and animals. Howard (1901, p. 17) writes: "In the summer of 1900 Mr. W. Y. Matheson, living at Lloyd's Neck, L. I., a spot formerly infested by mosquitoes to an extraordinary degree, by intelligent exterminative measures succeeded in practically stopping the breeding of mosquitoes upon this neck of land. It resulted that his house was mosquito-free until toward the end of August. Then, after a gentle and continuous wind of two or three days' duration, specimens of another kind of mosquito put in their appearance in large numbers. The explanation was obvious. These mosquitoes had traversed a strip of water, forming one of the entrances from Long Island sound to Oyster bay, for a distance of a mile or a little more, aided by the gentle and continuous wind."

In the *Public Health Reports* published by the United States Marine Hospital Service (Vol. XVI, August 9, 1901, p. 1792) two communications relative to the dissemination of mosquitoes are published by members of the Service. P. C. Kalloch (surgeon) writes from the Gulf Quarantine Station "that the captain of the ship *America*, arriving in quarantine July 24, states that mosquitoes came aboard the vessel on the previous night at a distance of at least ten miles from land, the nearest point being Chandeleur Island. The opinion prevails in this locality that mosquitoes are blown by southwest winds from the Louisiana marshes to this island, a distance of ten to twenty miles, and the experience of this summer seems to accord with the opinion. Mosquitoes were very few in number until the middle of July, when, after several days of southwest winds, the number was vastly increased. At that time there was no other local condition to explain the sudden increase."

The second communication is similar to the one just cited, and is omitted here.

As to the supposed influence of railways in the dissemination of mosquitoes, Howard quotes letters from various correspondents. One of these claims that there were no mosquitoes in the City of Mexico before the railways were built from Tampico and Vera Cruz, mosquitoes being very numerous in both of these low-lying places. Lounsbury, government entomologist at Cape Town, wrote that the railway had been responsible for the dissemination of mos-

quitoes in many parts of South Africa, and another correspondent "gives details of a precisely similar introduction of mosquitoes into a high-lying Missouri town."

Migratory Flights.—Hitherto no migratory flights have been observed in connection with anopheles. In view of the very positive statements of some authors to the effect that the flight of the culcidae is very limited, the authors cite the following observations recorded by Howard, in which, however, neither the genus nor species of culcidae involved is mentioned. The conditions which bring about such migrations are unknown. Howard (June, 1901, p. 22 of this journal) cites a personal letter from J. D. Mitchell of Victoria, Texas, in which that gentleman states that he has occasion to observe mosquito migrations. On the first occasion (October, 1879) "a fairly strong easterly wind had been blowing for three days. On the evening of the third day the mosquitoes arrived, flying high, about fifty feet, and looking like a cloud or mist coming from Carancahua bay. At the ranch they set everything on fire that had blood in it, and all work was suspended by unanimous consent. * * * Little or nothing was done for nearly five days. By this time the main body had passed, though plenty remained to make everything uncomfortable for about two weeks. This migration was from east to west, and the line was about three miles wide. * * *" It would appear as if the mosquitoes had originated from a marsh eighteen square miles in extent, situated at a distance of thirty-five miles as the crow flies. This flight crossed two expanses of water which were, respectively, five miles and one mile broad.

Similar migrations have been observed in connection with other insects, scattered observations being found in entomological literature. The phenomenon may possibly be due to the overstocking of a given locality by a species.

Hibernation of Imago.—Nuttall and Shipley have already referred to the seasonal occurrence of the imago and larvae, and to hibernation of the larvae of anopheles, and have seen that apparently only the larvae of anopheles bifurcatus survived the winter in cold climates. Entomologists agree that culcidae hibernate as imagines. Nuttall wrote (1899, p. 111) that Finsch (1876) made observations on the Siberian Tundras which led him to believe that the imago of culex hibernated beneath the moss. Sterling saw mosquitoes at Mackinaw, Sault Ste. Marie, in March, 1844, when the snow, which lay two or four feet on the ground, was being melted by the sun. The insects appeared in thousands, and bit his party until sundown. Stewart (1891) of North Carolina saw mosquitoes appear in swarms in March when several feet of snow lay on the ground. They "literally blackened the banks of snow in sheltered places. These were evidently the insects of the

previous summer which were wintering over. The Indians told us that the mosquitoes lived over the winter, and the old ones are the most annoying to them."

Grassi says that he has never found the males of *anopheles maculipennis* hibernating, but only the females, all of these being fecundated. The development of the eggs was retarded by the cold, and advanced with the onset of warm weather, when the female would again begin to bite. The imago was very frequently encountered in houses, stables, chicken-houses, and especially in heated apartments. In Central and Southern Italy they were found to hibernate in cabins and grottoes, although less numerous in these situations. The imagines begin to disappear in February, and vanish to a greater extent in March, when at times none are to be found. The insects have presumably flown out and died after depositing their eggs. He states that but a few *anopheles bifurcatus* hibernate as imagines. A few *anopheles superictus* were found hibernating in grottoes. Mr. Theobald informed the authors that last year the imagines of *anopheles maculipennis* which have hibernated in England disappear early in May, "no doubt to oviposit and then die." Nuttall and Shipley have found this species hibernating in the cellar of a house in Cambridge, and have caught them occasionally during the winter. Annett and Dutton have reported the finding of hibernating imagines in similar situations in north and middle of Cheshire county during the month of February. Howard states that Dr. Thayer of Baltimore observed *anopheles crucians* and *anopheles quadrimaculatus* hibernating in enormous numbers in barns near New Orleans, clustering to the roofs and on the walls. The authors find, like other observers, that the female imagines live longer in captivity as winter approaches, and it is presumed that such insects would successfully hibernate under natural conditions.

Longevity of Imago.—From what has just been stated, there appears to be no evidence that the male imagines hibernate, and this sex has in all probability a much shorter life than the female. Grassi states that he could only keep *anopheles* alive a month in the laboratory. Howard could only keep *anopheles maculipennis* alive for eight days in confinement in summer, but Woldert kept them alive for fifteen days on banana alone. In the autumn they lived fifty to sixty days in confinement, these being insects which would probably have hibernated. The authors succeeded in the summer of 1900 in keeping females alive on a diet of banana and water for fourteen to fifty-six days, it being found essential to keep the atmosphere moist and the food fresh, both of which conditions are apt to be neglected. They also noted that the females were able to live longer in captivity as winter approached. Unfed males and females, confined immediately after their escape from the pupa case and maintained at about 20° C., survived two or three days.

Oviposition.—With the exception of Kerschbaumer, nobody has claimed to have observed the process of oviposition, and, as far as the authors know, no one has witnessed copulation. After numerous attempts made between 8 P. M. and 2 A. M., Kerschbaumer found that both anopheles and culex, at any rate in captivity, only oviposited in the early morning hours. He witnessed the process but once in anopheles, thrice in the case of species of culex. He does not, however, describe the process (excepting in so far as he says the insect rested directly upon the water), and what he says of culex has already long been known, and he found that unfed anopheles hardly ever seemed to lay a full complement of eggs. A female laid a batch of 146 eggs, and subsequently six more. Observations upon captive insects have shown that the nature of the food supplied has a considerable influence upon fertilization and oviposition. Thus, Ross, Annett, and Austen found that if anopheles males and females were placed together and fed on fruit no fertilization took place even after weeks of confinement. The contrary was the case when the females were fed on blood. Fertilized females laid a second batch of eggs after receiving a meal of blood, but did not do so when kept on a fruit diet. Both Grassi and Ross and his colleagues have concluded that blood is essential for the reproduction of the species which they studied. Austen writes: "The experience of the members of the Sierra Leone expedition of the Liverpool School of Tropical Medicine showed that eggs are laid only by female anopheles which have had a natural food of blood, and that naturally-fed specimens invariably laid eggs after two or three days."

According to the report of the expedition the following law is likely to hold good for the culicidae which feed on man, at least for the common species: Although these gnats live indefinitely on fruit, the female requires a meal of blood both for fertilization and the development of her ova. In other words, the insects need blood for the propagation of their species.

Number of Generations During the Season.—Observations made by Italian observers indicate that between three and four generations of anopheles may be developed during a season. Kerschbaumer observed four generations to occur in Austria. The first appeared in April and the beginning of May, the second in the beginning of June and the first week of July, the third appeared at the end of July and first three weeks of August, the fourth between the middle of September and the middle of October. In these cases the number of generations was determined by the finding of young larvae. Basing his calculation upon the assumption that a female may lay 150 eggs, and assuming further that all the descendants lived, he figured that the number of descendants calculated up to the fourth generation would number 31,000,000.

(To be continued.)

Society Reports.

BALTIMORE MEDICAL AND SURGICAL ASSOCIATION.

MEETING HELD MONDAY, APRIL 14, 1902.

MEETING called to order by the president, Dr. J. L. Ingle.

Dr. J. G. Wiltshire: "A Case of Enterolith, with Specimen."

In the summer of 1901 I was requested by Dr. Christion, who expected to be out of the city for a few days, to see Mr. M. for him. I called at once, and found that the patient had been suffering severe pain in the right hypochondriac and lumbar regions for several days. Palpation*revealed nothing to account for the pain but a kidney in the lower part of the right lumbar and the upper part of the inguinal region of the same side. The displaced kidney was too firmly fixed in its new position to be a floating one. I addressed my remedies to the relief of the patient, and after a few daily visits I turned him over to the cook.

A few days afterwards I saw Dr. Christion, who told me he called Dr. McLane Tiffany in Mr. M.'s case to determine the cause of the displacement of the kidney, who for the same reason I have assigned decided that it was not a floating kidney, and to await future developments to show the cause of the depression.

On October 6 I was summoned again to see Mr. M., whom I found this time suffering from marked indications of occlusion of the bowels, evidenced by stercoraceous vomiting, pain in the umbilical region, and obstipation. Palpation revealed two hard bodies about the size of a small walnut in the right side of the umbilical region. I saw at once that immediate surgical interference was imperative. But before removing my patient to the hospital I thought it wise to have the concurrence of another physician in my opinion. Acting upon this thought, I called Dr. John D. Blake, who kindly responded at once, and after making our examination, he agreed with me that an operation was required.

The ambulance was called and the patient taken to the Maryland General Hospital. After preliminary aseptic preparation was made and chloroform administered, a laparotomy was done by myself, with the valuable assistance of Dr. Blake. A digital search for the cause of the obstruction revealed two hard bodies the size of a small walnut located in the lower part of the ileum, completely occluding the lumen of the intestine. These were removed through a small opening over each, and the incision closed with Lembert's sutures. In passing my hand over the field in search for the causes of obstruction I paused a moment to learn the position of the right kidney and the condition of the gall-bladder. I found the former in situ, and the latter containing nothing but bile. The abdomen was now closed, the usual drainage applied and fixed by bandages. The patient was made comfortable in bed, and a quarter grain morphia was hypodermically administered to prevent pain and shock. A comparatively comfortable night was passed, and the next day things went on smoothly, and continued so until the fourth day, when indications of shock manifested themselves, increasing each hour in gravity until the fifth day, when "death closed the scene."

There are several points of interest in this case that I would like to call the attention of the members to:

First—What was the source of the enteroliths, and what is their composition?

Second—What was their pathway of entrance into the intestine?

Third—In the onset of the case, what force was employed to depress the right kidney?

The first question can easily be disposed of. Chemical tests showed very clearly that they were composed of cholesterine (a bit was dissolved in ether, and on evaporation the crystals were evident).

The second question is involved in slight mystery, though I think the overhanging clouds can be removed. The *via rationale* for gallstones to pass from the gall-bladder to the duodenum is by the common duct, but I question if such large bodies could gain in passage through such a narrow canal. If not by this route, what, then, was open to them? Dr. John A. Wyeth, New York, in his admirable work on surgery, says "biliary calculi may cause ulceration of the gall-bladder and duodenal walls, enter the canal in this manner, and cause intestinal occlusion." That my case is one of this sort can be proven by two symptoms that were prominent in the initial attack. There was continuous acute pain under the liver lasting for several days, accompanied with depression of the right kidney. Had the calculi gone by the rational way the pain would have ceased when their passage was effected. Then, too, there would not have been any displacement of the kidney. Again, the passage of such large bodies through such a narrow canal would have caused more or less shock.

On the other hand, if the passage was effected by a process of ulceration the pathological conditions would be very different. There would be a deposit of inflammatory product along the line of march, so to speak, and followed, in all probability, by abscess, either of which—more particularly the latter—would be a powerful factor in displacing the kidney.

I had some of these bodies subjected to ether to show the crystals of cholesterine, of which they are composed. I would like to know what is the best way to prevent the formation of these stones. We know that in the bile there exists two salts—glycocholate and taurocholate of sodium—to hold in solution this cholesterine. Now, why is it that it forms itself into these concrete bodies? Why are these two salts not there to act as solvents, and what will restore their presence in the bile?

Dr. Perry: The case is of unusual interest. Personally, I have not seen a case of this kind, and, in fact, there are very few on record. Several things connected with the case are mystifying—the marked depression of the kidney some time before, and that after the operation it went back to its normal site. One of the characteristics of movable kidney is the facility with which it is reduced, and the thought occurred to me that if the patient was placed in the Trendelenberg position at the operation it might have gravitated back. The facts in the case are rather remarkable. It would seem as though it might have been adherent in some way to the liver.

Dr. Whitney: Just from ordinary inspection these look like mixed stones. The pure cholesterine stones very seldom show on cutting into them any such dark color as we find all the way through these. They have something of the fatty feeling of cholesterine. It is possible that when they left the

gall-bladder they were very much smaller, and that material eliminated by the intestines was precipitated upon them, giving them this special form. In that case there would be found in the outer layers stercorine instead of cholesteroline. That differs in its physical properties from cholesteroline. The melting-point is something like 100° , while that of cholesteroline is 145° . It is soluble in cold alcohol, while cholesteroline is not. If the outer layers contain this substance, stercorine, it would show that the precipitate occurred in the intestinal canal, enlarging the stones in this way.

As to the formation of the stones, it has been more or less of a fight between the bacteriologists and chemists, one attributing the cause to bacteriological conditions, and the other to chemical. It is quite possible that there is a combination of these changes. If you have an infection of the gall-bladder, there is an inflammation set up and the formation of a sort of nucleus, and then precipitation of cholesteroline goes on rapidly. It is quite possible that in some of these cases the precipitation depends upon an excessive amount of cholesteroline or a deficiency of the salts. In some instances treatment with the bile salts has been productive of very good results. A friend of mine now has a patient under treatment where gallstones have been found three times, and it will be interesting to see if this treatment will prevent the necessity for a fourth operation. I have seen a number of cases do well under the treatment with the bile salts, and it is certainly worthy of trial, especially where there is no urgent need for an operation.

Dr. Wiltshire: I am glad Dr. Perry takes the view he does of the matter. I was of the opinion at the time I made my second examination, and was still further convinced on looking into the matter that this displacement of the kidney was due to the fact that inflammatory products had been thrown out. I believe the displacement was brought about by inflammatory products. As to the formation of the stones: In these cases of gallstones there is some interference with the metabolism of the body; its functions are not being carried on normally. I had another case last summer where the patient had passed quite a number of these gallstones, and declined operation. I ordered her to take plenty of exercise, and placed her upon the usual diet, and later added to the treatment ox-gall containing the two bile salts, thinking that perhaps it would help to hold in solution the cholesteroline. She has gotten along nicely under this treatment, and I have not seen her now for six months.

Dr. Brinton: Did I understand it to be Dr. Wiltshire's opinion that gallstones were found in the intestine, due to perforation of the gall-bladder? I think that most improbable that gallstones should pass through the gall-bladder into the duodenum by a process of ulceration.

Dr. Wiltshire: That thought was suggested to my mind by the statement of Dr. Wyeth, who is a recognized authority, and I believe it quite possible that in this instance it did ulcerate through the wall of the gall-bladder and through the wall of the duodenum into the intestinal tract. These stones, after passing into the intestinal tract, I believe wandered backward and forward by the peristaltic action of the intestine until they were much larger than when they passed out of the gall-bladder. They acquired size as they went, just as a snowball will in rolling down hill. Of course, they must have been much smaller when they passed out through the wall of the gall-bladder.

Dr. J. L. Winner: "Case of Afebrile Pneumonia."

Mr. T. G., aged forty-eight, by occupation seafarer, consulted me at my office March 17, at which time he complained of deep pains in the region of the left nipple. As the patient entered my office I noticed that his respiration was accelerated, and that he was suffering from dyspnea. On examination I noticed that the respiratory movements were increased in frequency, and restrained on the affected side. His respirations were 48 to the minute, pulse 90; the left lung showed the physical signs of consolidation, yet, strange as it is to relate, there was absolutely no elevation of temperature. His cough was dry and hard, and very painful, and there was no expectoration. He called at my office again the next day, contrary to my instructions, as I had ordered him to remain in bed. At this time he presented the same symptoms as on the previous day. I ordered a continuation of the same treatment, and advised him to return home. On the following day I received a telephone message to call at his house. Expectoration was now present, but very scant. It was tough and tenacious, and somewhat tinged with blood. Dyspnea was still very marked. On the fourth day of treatment the sputum assumed the characteristic rusty tinge, which became more marked as the disease developed. The next few days the symptoms remained unaltered, and still there was no elevation of temperature. On the sixth day the symptoms began to ameliorate. The cough, whilst still dry and hard, was not so painful, the dyspnea was considerably lessened, and the expectoration was much easier, yet the left lung remained consolidated, but in a few days some crepitation began to return, expectoration was lessened, and the lung now began to show signs of repair. The cough, however, remained dry and hard, although less frequent. At no time did the disease show any signs of reaching its acme, and on the fourteenth day of the disease, practically two weeks after treatment, no crisis having occurred, the patient began to assume the appearance of convalescence. He remained in a well sunlit room during the whole course of the disease. On the fourteenth day the patient informed me that he intended to go out of the house the next day, which action I sanctioned, as at no time had he been confined to bed. He was averse to the point of obstinacy regarding my instructions as to remaining in bed. The next day the zenith was reached, and much to my astonishment I learned of his sudden demise; that he had died after visiting the Holy Cross Cemetery, where he laid flowers on the grave of his child, to whom he was much endeared. On reaching home he was attacked with hemoptysis so profound as to cause collapse and death.

Dr. Wiltshire: I would like to ask what the patient died of—the immediate cause of death.

Dr. Winner: The immediate cause was hemoptysis—rupture of pulmonary blood-vessels.

Dr. Perry: I would like to ask if an examination of the sputum or blood-counts were made.

Dr. Winner: No. Throughout the whole course of the disease expectoration was light. On the third day it was tinged with blood, and on the fourth had the characteristic rusty appearance. I excluded tuberculosis on account of the robust appearance of the patient, who was a seafaring man. The heart action was always good, and death was due to pulmonary hemorrhage.

President: The case is very interesting to me, as five or six years ago I

saw the first and only case of the kind I have ever seen. The signs of pneumonia were very marked, but owing to the absence of fever, and at times even subnormal temperature, I was in some doubt. Dr. Chew saw the case with me, and although the absence of fever was to him a peculiar feature of the case, he said there was no doubt in his mind that it was pneumonia. The physical signs and characteristic sputum left no doubt as to the nature of the trouble.

MEETING HELD MONDAY, APRIL 28, 1902.

Dr. W. A. Montell: "An Improved Maxillary Splint—Exhibition of Patient."

Before proceeding with the subject I want to say that I held the patient a week longer than he should have been held in order to exhibit him here, but as union of the bone had completely taken place, and the patient wanted the apparatus removed, I was not able to keep him any longer. He left the city. Of course, an inter-dental splint is nothing new. It originated back in the 1700s, and in 1865, when Seward was shot in Washington, a dentist was called upon to make a splint for the maxillary bone. That is a matter of history. Many of you have seen inter-dental splints, but the method of getting the impression and securing adaptation of the parts is the only originality that the splint I want to show you tonight possesses. The great difficulty in the past has been to obtain a correct relation of the maxillary bone and the teeth, and in order to accomplish that it occurred to me that the operator might stand in front of the patient, and, with the hands in the mouth of the patient, adjust the parts to the proper position, and then taking a towel folded several times to a surface of about six inches, filled with soft plaster, while the operator held the bone in place the assistant could place the towel with the soft plaster beneath the chin and hold it until the plaster had partly set, just as in taking an impression for a set of teeth. The result is a mold of the chin, into which plaster is poured, thus getting a complete model of the chin and inferior maxilla of the patient. Then the impression of the interior of the mouth is taken, and the two splints are applied, one in the mouth, the other beneath the jaw, so that when the patient opens the mouth the bones are in position. That is a slight deviation from the plan originally employed, which consisted in taking a cast of the mouth and using it to adjust the parts to what appeared to be the proper relation. The part that covers the teeth holds the teeth themselves down, and the part passing beneath the chin, and screwed in position from the outside, allows perfect mobility of the jaw during the patient's convalescence. He is able to take solid food. If you will notice here the difference between the mouth closed and open you will see that there is plenty of room for food to enter, and that he can masticate, and thus obtain the right kind of nourishment, a point that is of vast advantage as compared with the old roller bandage or Barton splint. There is but one objection to the whole thing, and that was easily obviated, and that is that shutting up of tissue beneath the chin for any length of time is apt to produce sordes. I have shown this splint tonight at Dr. Blake's request, knowing that there are but few new features about it. The main ones are the manner of taking the imprint of the maxillary bone on the outside and the chin piece, which are not laid down or spoken of in any of the text-books. It offers an excellent device, too, for obtaining thorough antisepsis of the oral cavity. You can treat

with washes, and the patient can gargle and rinse the mouth himself. While the fractured parts are held readily in place, there is no interference with movement of the jaw in its socket, and quick union of the broken parts takes place. I have had some five or six cases in my experience that I have handled in this way, some on my own account, and some in connection with a medical practitioner. This case was a compound fracture, not only showing a fracture of the internal plate, but also a green-stick fracture of the outer plate. He had been struck on the jaw, the blow causing a green-stick fracture of the outer plate and a clean clear-cut fracture of the inner plate.

Dr. Abercrombie: One of the old methods of making inter-dental splints consisted in taking impressions of the teeth, and leaving a window in the splint through which food could be administered. It is very difficult in this way to keep the mouth clean, and sometimes in the treatment of fractured jaw, where the patient has been so unfortunate as to have lost his teeth, I have used a soft bandage around the jaw, and have gotten good results. But it is, of course, difficult to keep the mouth in an aseptic condition, and I think this splint of Dr. Montell's is an excellent one. I saw the patient with the splint in place, and was struck with the freedom with which the patient could move the jaw and articulate. You could hardly notice any difference in the speech. It is undoubtedly a great improvement over any other splint that I have seen, inasmuch as it allows the mouth to be kept clean, and allows such perfect freedom in movement of the jaws.

Dr. Biedler: I wish to say that this splint is an admirable improvement over the old methods. I think its chief advantage is in that you can fasten the inner dental splint to the outer one. In many cases of fracture of this kind you can take the ordinary Japanese silk and secure a firm condition of the parts and get good results, but in a comminuted fracture it would not do so well. We sometimes use the Levy splint, fastened with a thread over the head. That, however, is a cumbersome splint compared with this. I would like to make one suggestion, and that is that this inner plate should be tapered more to fit down over the teeth. I have had a great many cases of fracture of the inferior maxilla in children, and they are very troublesome cases to treat. There I have an inter-dental splint to cover over the bone entirely in the mouth and that supported by a Levy splint on the outside. There is difficulty, however, in keeping it in place, while here you can secure splints together very nicely.

Dr. Montell: The idea advanced by Dr. Biedler is correct, and under certain conditions it would, of course, have to be done, but this patient, having all his teeth in his mouth, there was no necessity for sinking the splint down. It was the fact that the fracture was so far posterior that unless there was something to catch the angle of the jaw you could not firmly hold the parts together that caused me to devise the external plate.

Dr. Mills: I had a case similar to that of Dr. Montell some years ago, and the splint used in that case is now in the museum of the University of Maryland. The patient was kicked by a horse. I simply adjusted the parts with the aid of an assistant, and filled in between the two jaws molding material, just as the doctor did, removed it after it had thoroughly hardened, and from that made a dental splint which covered these teeth from here to here (illustrating), and that I cemented in, and allowed the patient to masticate upon the surface of the cement instead of upon his teeth.

Book Reviews.

AMERICAN EDITION OF NOTHNAGEL'S ENCYCLOPEDIA: VARIOLA, VACCINATION, VARICELLA, CHOLERA, ERYSIPELAS, WHOOPING COUGH, HAY FEVER. Variola (including Vaccination), by Dr. H. Immermann of Basle; Varicella, by Dr. Th. von Jürgensen of Tübingen; Cholera Asiatica and Cholera Nostras, by Dr. C. Liebermeister of Tübingen; Erysipelas and Erysipeloid, by Dr. H. Lenhartz of Hamburg; Whooping Cough and Hay Fever, by Dr. G. Sticker of Giessen. Edited, with additions, by Sir J. W. Moore, B.A., M.D., F.R.C.P.I., Professor of the Practice of Medicine, Royal College of Surgeons, Ireland. Handsome octavo volume of 682 pages, illustrated. Cloth, \$5 net; half morocco, \$6 net. Philadelphia and London: W. B. Saunders & Co. 1902.

It is a great service to American physicians to give them a translation of a masterly monograph on smallpox, such as that of Immermann. The literature of smallpox is, as the author says, unlimited. The English literature of the subject, indeed, is almost unlimited, and is most important, but there is not in English a more satisfactory modern work on smallpox than this by Immermann. The English editor of the translation is John W. Moore of Dublin, who wrote the article on smallpox in *Twentieth Century Practice*, and a better choice for this task could not have been made. The editorial additions to the original text are almost confined to the chapter on treatment, and concern chiefly the use of red light or the exclusion of chemical rays.

The account of the parasitology of smallpox comes down only to about 1893, no mention being made of the work of Monckton Copeman, or of Funck.

The article on Vaccination is also by Immermann, and is, if possible, more satisfactory than that on smallpox. It is a rather long article, about 132 pages, but is full of interest throughout. The statistical argument is nowhere stated in more orderly fashion, and the entire article goes with a snap that suggests almost the voice of a powerful advocate. The force of his earnestness carries him beyond the logical end of his paper, and there are two pages of closing remarks which summarize the arguments in energetic style as if to countersink every nail he has driven.

The volume also contains articles by Th. von Jürgensen on Varicella, by C. Liebermeister on Asiatic Cholera and Cholera Nostras, by Herman Lenhartz on Erysipelas and Erysipeloid. Erysipeloid is a disease which particularly affects persons who constantly handle meats or fish. The fingers are usually attacked, but other exposed parts of the body may be attacked. It is a benign affection, but is likely to be mistaken for erysipelas by those who are unacquainted with it.

G. Sticker of Giessen has two articles, one on Whooping Cough and one on Hay Fever. The latter disease he treats under the title Bostock's Summer Catarrh, in recognition of Dr. John Bostock of London, who in 1819 gave the first clear and complete account of the clinical characteristics of

the disease under the title "A Case of Periodical Affection of the Eyes and Chest," and in 1828 published another paper based on twenty-eight cases of what he called *catarrhus estivus*.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and especially-prepared articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose, and Throat, and other topics of interest to Students and Practitioners by leading members of the Medical Profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., and others. Volume I, twelfth series. Philadelphia: J. B. Lippincott Company. 1902.

This volume contains twenty-one articles on a great variety of subjects, most of the contributors being recognized authorities, and many of the articles being unusually well illustrated. The first two articles are brief biographical sketches of Dr. S. Weir Mitchell and Dr. John A. Wyeth. The longest contribution of a single author is a review of the progress of medicine in 1901, by Dr. Edward Willard Watson, covering more than 100 pages.

Another article on medicine is a paper by Chas. E. Simon of Baltimore on "The Significance of Basophilic Granules in Red Corpuscles, with Special Reference to Their Occurrence in Lead Poisoning," a very interesting article, which includes an account of the experimental production of the granules by the administration of lead.

Dr. John C. Hemmeter of Baltimore furnishes the first half of an article on "Gastro-intestinal Intoxication."

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Vol. I. Octavo, handsomely bound in cloth, pp. 452, five illustrations. Per volume \$2.50, by express prepaid to any address; per annum, in four cloth-bound volumes, \$10. Philadelphia and New York: Lea Bros. & Co. 1902.

This, the first volume for the year 1902, promises to more than sustain the reputation which this valuable quarterly has acquired. The article on Surgery is by Charles H. Frazier of Philadelphia, and treats of the surgery of the head, neck, and chest. Very important parts of this article relate to the surgery of the cranial nerves and of the thyroid gland.

The article on Medicine is by Dr. Frederick A. Packard, and deals with the infectious diseases, including rheumatism, croupous pneumonia, and influenza. Of especial interest in this paper is the portion on typhoid fever, a disease whose literature shows no falling off in its rate of growth.

Dr. Floyd M. Crandall contributes the section on Pediatrics.

Ludwig Hektoen gives an excellent summary of recent work in Pathology. St. Clair Thomson contributes the article on Laryngology and Rhinology, and Robert L. Randolph is the author of a very satisfactory summary of the recent literature of Otology.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES, Embracing the Entire Range of Scientific and Practical Medicine and Allied Science, by various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M.D. Volume II. Illustrated by numerous chromolithographs and 765 half-tone and wood engravings. New York: Wm. Wood & Co. 1901.

In this volume, which runs from Bla to Chl, one naturally turns to Blood and Brain in order to learn how fully the newer studies in these subjects are represented. One is not disappointed in the 100 pages devoted to the blood, comprising seven articles by Benjamin Moore, Pierre A. Fish, Charles N. B. Carnac, Beaumont Small, Moses C. White, Robert Formad and Ludwig Hektoen.

Three hundred pages are devoted to Brain, including twenty-seven articles. The first of these is a long article by Burt G. Wilder on the anatomy of the brain, including its embryology, comparative anatomy, and teratology. Other titles under the head of Brain are abscess, anemia, aneurism, atrophy, cephalocele, cerebellar disease, cerebral hemorrhage, cerebro-spinal fluid, circulation, compression, diagnosis of local lesions, development, embolism and thrombosis, functions of the cortex, growth, histology (a full and interesting paper by Barker), methods of removal, preservation and examination, simple meningitis, softening, surgery (Keen), syphilis, tuberculous meningitis, tumors. In this part of the volume there are five fine color plates and a large number of black-and-white illustrations.

Under *Bubo* we find an article on plague, "bubo plague," as it is called; not as satisfactory an article as might have been produced in 1901.

There is an excellent article by Munson on camp diseases, including a temperate discussion of the canteen.

The article on cancer is by Wm. B. Coley.

Under the head of carcinoma there are two good contributions—one by Councilman, the other by Fordyce. The illustrations of this subject are very fine.

Reid Hunt contributes twenty pages on cardiac depressants and stimulants.

Under *Catheterization of the Urethra* we find the Handbook again brought quite down to date in an article by Orville Horwitz.

MOTHER AND CHILD. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, etc. Philadelphia: J. B. Lippincott Co. 1902.

This little book of 250 pages is a new edition of the late Dr. John M. Keating's book of the same title. It is a good book for the use of young mothers, being well written, well illustrated, and well printed, and furnishing a sort of information which may quite properly be supplied in book form.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, OCTOBER, 1902

THE SUMMER-DIARRHEA SENSATION.

To have established the etiological relationship of Shiga's bacillus to the chief cause of infant mortality is a bit of good fortune upon which the founder and trustees of the Rockefeller Research Fund, the directors of Thomas Wilson Sanitarium, and the successful investigators are all to be congratulated.

The premature announcement of this very noteworthy result in the secular press was a matter of chagrin to the investigators and of astonishment to the medical profession, but has on the whole been less severely criticised than might have been expected. The news interest of such a find is so obvious that it is not surprising that the daily press made it a big feature. It is, however, quite surprising that one Baltimore daily should have gotten such a story from the columns of another Baltimore daily, and should have handled it so patiently and so cleverly as to be able a few days later to spring upon the press of the country so great a "scoop." The tail-foremost advent of this important news is a tale worth telling.

The fruitful researches of Shiga in Japan, of Flexner and of Strong in the Philippines, of Kruse in Germany, and of Flexner and his assistants in this country are now familiar. They demonstrated a wide geographical distribution of the bacillus of so-called tropical dysentery, and proved its pathogenicity for adults in temperate as well as tropical climates. At the beginning of this summer Flexner was asked to send a special student of the subject to Thomas Wilson Sanitarium. The young man to whom Flexner assigned this work had previously done very good work, particularly upon the technic of isolating the Shiga bacillus from other intestinal flora. He found Shiga bacillus in the first two cases which he studied at Wilson Sanitarium. Perceiving that one man could not in a single summer make a conclusive study of this very promising subject, it was agreed that other research work at the Sanitarium should be dropped for the time being in order to concentrate upon this interesting find.

Bacillus dysenteriae Shiga was isolated from the stools in forty-two cases of infantile diarrhea, and was also found at autopsy in the intestinal mucosa, the mesenteric glands, and the liver. Its identity was established by all

the cultural and morphological characteristics and by the reaction of the bacillus with the blood of the patient, the blood of other infants having summer diarrhea, that of adults having bacillary dysentery, and with immune animal serum. Negative evidence was obtained by comparative studies of the blood and of the stools of twenty-five children in health or having other diseases. A complete account of the investigation was about ready to be sent to the *Journal of Experimental Medicine*.

A number of medical men knew of the progress and the result of the summer's work at the Sanitarium. Among them was a young physician who was intimately associated with one of the investigators in a well-known clinic. Naturally, these two had talked quite freely on a matter of such great interest. The young physician has a near relative who is regularly employed by a daily paper, and who, having undertaken the preliminary training and expressed the intention of studying medicine, is somewhat in touch with medical affairs. To this reporter the story was disclosed by his too confiding relative. One of the investigators, on being interrogated by the reporter, exacted a promise that no public announcement would be made until the article was about to appear in the *Journal of Experimental Medicine*. This promise the reporter readily made and failed to keep. He left town, and there appeared in his paper a little screed which utterly failed to present the subject either as secular news or as scientific information. The item aroused no one except the investigators, and what occurred, besides prayers, at the next family gathering is none of our business.

The statement given out by another Baltimore daily at a later date, and which was received by the press of the country as a notable "scoop," was based upon information furnished by Dr. Welch and by one of the investigators who suppressed entirely his own name and declines, it is said, any share in the authorship of the forthcoming scientific article.

The performance of the reporter who first put out the story, quite aside from its moral aspects, was the sort of a foozle that should win a swift exit from both medicine and journalism.

The publication of a really good account in another paper at a later date was a legitimate resort of the investigators under such circumstances.

It is, of course, unfortunate, and to those most concerned a cause of much mortification, that the results of their work should have been announced in advance of the proofs upon which their conclusions rest. Apparently it is very difficult for lay people to see what harm such a premature publication can do to honest investigators. In this instance, as is usual in such cases, reporters were sent out by the great dailies to interview leading physicians upon the striking news from Baltimore. None of those who were interviewed had, or could obtain, any other information on the subject than was contained in the Baltimore paper. They were therefore unable to ex-

press any independent opinion, and were obliged to fall back upon the great reputation of Dr. Welch, who seemed to stand sponsor for work in which he had no hand. If the first published account had attracted as wide attention, the young and less-known investigators would have been subjected to ridicule, perhaps to insult. The matter is now in a state of suspense that is irksome to the profession, and it must be painful to Messrs. Duval and Bassett to have been thrust into publicity in such a state of *déshabille*.

One word more. It is one thing to have a lever long enough to move the world and another thing to find a place to stand. The discovery that Shiga's bacillus is the cause of most of the fatal intestinal disorders of infants might have been long delayed but for the happy thought (or acute perception) which brought one of Flexner's best workers to Thomas Wilson Sanitarium. We are glad to express the fullest confidence that this summer's work will bring great and deserved credit to the superintendent and trustees of the Sanitarium.

A FATAL ACCIDENT IN AN UNLICENSED ELEVATOR.

WE called attention recently to the horrible holocaust in which the lives of several helpless patients in "St. Luke's Hospital," Chicago, lost their lives. In that instance the gross neglect of the municipality was glaringly apparent, for the building was wholly unsuitable to the purposes of a hospital, and the authorities had guilty knowledge that the place was being operated without a license. The windows were heavily barred and screened so that, once a fire started, escape for the majority of the inmates became impossible.

A minor instance of similar neglect, only less deplorable as costing but one life, is reported in New York. On August 28 a young woman, aged twenty-three, a patient in a private hospital, had been etherized on the fourth floor, and was being taken on a stretcher to the floor above for operation. She slipped from the elevator car and fell to the bottom of the shaft, meeting instant death. The explanation of the accident is found in the construction of the elevator and shaft. It was a new and unfinished electric elevator. The car was without doors, and there were no lights. Moreover, the car was too small for the purpose, having floor space only five feet by three. The shaft was reached from the several floors by apertures in a 16-inch wall, and between the floors there were sixteen inches of open space between the car and the side of the shaft. It is supposed that the nurse who had charge of the patient did not observe, in the dark car, that the stretcher rolled a little forward, so that the handles, as the car rose, caught under the projection of the upper floor, shooting the body of the insensible patient through this 16-inch space to the bottom of the shaft. The noteworthy points of the story are that the hospital was a private one, and that the elevator was unlicensed.

Medical Items.

THE outbreak of smallpox at Williamsport, Md., counted up in all twenty cases, the largest single outbreak in Maryland since 1898. It has now subsided.

THE Tuberculosis Commission of New Jersey has decided upon a site for a State hospital for consumptives. Four hundred acres of land at Glen Gardner have been purchased for the purpose.

DR. WILLIAM H. WELCH sailed on September 19 for England, where he will deliver the Huxley lecture on October 1 at Charing Cross Hospital. He will return to Baltimore about October 20.

FROM Japan comes the story of a woman under the care of the doctors Sato who gave birth to five children at one accouchment. From New York we have the report of one infant weighing at birth thirty pounds.

FRANCE has at length a compulsory vaccination law, which requires parents to have their children vaccinated in the first year of life, and requires everyone to be vaccinated within one year after the age of twenty-one.

GEN. WM. H. FORWOOD, surgeon-general of the United States Army, retired on September 6, having reached the age limit. He is succeeded by Brig.-Gen. Robert M. O'Reilly, late the head of the medical corps of the Department of California. During President Cleveland's two administrations Dr. O'Reilly was the official physician of the White House.

DR. ELLIS CLARENCE GAREE died at his home in Baltimore on August 30 of typhoid fever. Dr. Garee was a native of West Virginia, and forty-one years of age. He graduated in medicine at the College of Physicians and Surgeons in 1890, and was engaged in practice up to the time of his fatal illness. He was president of the Southwest Baltimore Improvement Association and a city health warden.

DR. JAMES COOK BURCH of 511 Hanover street, Baltimore, died on September 21 at the City Hospital of Bright's disease. Dr. Burch was born in St. Mary's county, Maryland, in 1838. He graduated in medicine at the University of Maryland in 1861, and practiced in

his native county for five years. He began practice in Baltimore in 1866. His son, Dr. Wm. B. Burch, is at present the State vaccine agent.

THE latest method of determining sex at will is at present on trial in a Russian province. The sex of the forthcoming babies is determined at the will of one man, the governor, who has issued an order that the fathers of girl babies shall receive forty strokes with the knout for each and every offense. With a spare boy baby or two and a little cleverness at juggling, a Russian midwife might do a very profitable business in that province.

IT now appears that the remarkable subjugation of smallpox in Cleveland by an unique city health officer who knew enough to fight smallpox without vaccination was simply an iridescent dream. There was no epidemic in existence when this redoubtable champion made his encounter, but there is smallpox enough at present in Cleveland to require the employment of weapons of precision. It cannot be done with a megaphone this time. Vaccination is reinstated.

DR. ST. GEORGE WILLIAMSON TEACKLE died August 30 at his home in Govanstown of heart disease. Dr. Teackle was born in Baltimore fifty-three years ago, the son of a well-known lawyer of his day, after whom Dr. Teackle was named. He was educated at the University of Virginia and the University of Maryland. He practiced medicine in Baltimore for nearly thirty years, and was for about twelve years State vaccine agent. He is survived by a widow and two children.

RUDOLPH VIRCHOW was buried on September 10, from the City Hall of Berlin. The exercises are said by our correspondent to have seemed somewhat cold and formal, though eulogies were spoken by distinguished men. The reason for this is said to have been that no man dared to refer to what was probably uppermost in every man's mind, namely, Virchow's place in the hearts of the people. There must have been one touching moment, when Waldeyer left the rostrum to stand beside the bier and address a few words to his dead friend and teacher. Very different, we are told, were the proceedings in the large Workingmen's Club, where an assembly of the people mourned the loss of their guide and champion.

THE Medical Society of Virginia held its thirty-fifth annual meeting at Newport News on September 23, 24 and 25, 1902. The annual banquet was held at Chamberlin Hotel, Old Point Comfort. The following officers were elected: President, Dr. John M. Upshur of Richmond; vice-presidents, Dr. W. F. Cooper of Newport News, Dr. R. W. Saunders of Max Meadows, and Dr. J. F. Lynch of Norfolk; recording secretary, Dr. Landon B. Edwards of Richmond; corresponding secretary, Dr. J. F. Winn of Richmond; treasurer, Dr. R. T. Styll of Newport News.

A LITTLE fellow of eleven has run away from his home in Augusta, Ga., to escape vaccination. His father thinks that he has gone to Canada, but if he is a wise little boy, and believes people who do not tell the truth, he has probably gone to Cleveland. Georgia possesses, and probably enjoys, the unique distinction of being the only State without a State board of health. It was toward Georgia that the longing of an aged colored mammy turned when she found herself for the first time confronted with the ordeal of vaccination. "I wisht I was back in Ole Georgy," she said. "Dey has smallpox all de time, and dey don' never vaxnate nobody dar."

At a meeting of the Municipal Improvement League on September 25, Dr. Wm. T. Watson, chairman of the committee on health and sanitation, reported on the advisability of filtering the Baltimore city water supply. Premising that the establishment of a sewerage system is a primary need, the report stated that while Baltimore water at present ranks well among public supplies in America, the activity of other cities in water purification would, in the future, cause Baltimore water to be classed with the poorer public supplies. European experience shows that Baltimore's typhoid mortality can be reduced to less than one-fourth of its present rate, or from forty-five per 100,000 to less than ten per 100,000. After sewerage, filtration of the water supply should come at the earliest possible moment.

HEALTH COMMISSIONER LEDERLE has made important changes in the medical inspection of schools in New York. He has discharged two-thirds of the medical inspectors, who were paid \$30 a month, and has increased the pay of the remaining one-third to \$100 a month. Each inspector has three schools in his charge. He visits them all daily. At the first two schools visited he sees only such children as are re-

ported by the principal to need medical attention. At the third school he sees every pupil. He changes the order of his visitations daily, so that once in three days every pupil in attendance comes under the inspector's observation. Before half the school children had been examined in this way about 2000 cases of disease had been found, and Mr. Lederle believes that the inspection is at least ten times as effective as under the old scheme.

A MELANCHOLY romance of public hygiene is that of Alexandra Joseph, a young Syrian girl who attempted to enter this country through Montreal last May. Her lover, Joseph Abodeely of Cedar Rapids, Iowa, had sent her the money to bring her to this country. The United States immigration bureau stopped her at Montreal because she had trachoma. Her promised husband is said to have kept her under treatment at Montreal for three months, when his funds grew low, and he attempted to get in with her through Detroit. Both these enterprising young people were held by the United States authorities. Through the sympathy of the officials, Abodeely was allowed to escape, but his sweetheart was started in the custody of Commissioner Miller for New York with a Treasury warrant for her return to her home in Syria. Being permitted to go to the toilet-room, the unhappy girl escaped through the toilet-room window while the train was making fifty miles an hour. She was instantly killed.

A REMARKABLE story in the *Medical Record* gives the alleged cost of a small outbreak of smallpox at the village of Ossining, N. Y. There were three cases treated on a houseboat rented at a cost of \$225. The cost of conveying the doctor and others to the houseboat amounted to \$325. The bill for provisions was \$375. The physician paid fifty visits in twenty-five days, and his bill was \$2000. There is a bill of \$180 for clothing. Nurses and attendants presented bills at the rate of \$5 to \$10 per day. The doctor's bill is a big gouge, but perhaps not the biggest. One of the items is \$125 for whiskey. In a recent Maryland instance a male nurse, employed to care for two cases of mild smallpox, held a small town at his command in the matter of whiskey. He had only to say that he would leave if whiskey was not furnished him, and the town people gave him the time of his life. The end of his entertainment came when an official arrived and told him that he was not worth his whiskey or his wages, and might leave immediately.

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A CASE OF ULCERATIVE STREPTOCOCCIC COLITIS CAUSING BLOOD CASTS OF THE LARGE INTESTINE.*

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FROM THE PATHOLOGICAL LABORATORY OF THE COLLEGE OF PHYSICIANS
AND SURGEONS, BALTIMORE.

THE following case, which occurred in the service of Dr. Lattimer in the City Hospital, presented some points of interest which seemed worthy of record:

M. W., male, aged thirty-four, lumberman, was admitted to the City Hospital March 10, 1902.

He had the usual diseases incident to childhood, and at the age of sixteen years had an attack of dysentery which lasted three weeks, and from which he completely recovered. At the age of twenty-two (twelve years ago) he had typhoid fever and pneumonia. Following this illness he enjoyed remarkably good health, weighing on an average 190 pounds, until last September, when he began to suffer from periodical attacks of diarrhea, occurring at intervals of about one week, and each attack lasting about two days. After having four of these attacks, he was free until the latter part of December, when the diarrhea returned, the disease again being characterized by periods of intermission, but this time, in each successive attack, the symptoms became more pronounced, and the condition became associated with a rapidly-progressing emaciation and a corresponding weakness, causing the patient to be confined to bed about three weeks before his admission to the hospital.

During all these attacks he had never observed blood in the stools, nor had he felt any tormina and tenesmus. Eight days before admission he was seized with intense abdominal pains, and began to have frequent evacuations of the bowels—fifteen to twenty

* Reported at the Annual Meeting of Medical and Chirurgical Faculty of Maryland, April, 1902.

movements daily. These movements were bloody in character, and contained considerable mucus and epithelial shreds, and were accompanied by very severe tormina and tenesmus. At the time of admission, March 10, the patient continued to have frequent movements, which at this time were liquid in character, of a dark-brown color, and contained large amounts of shreddy, flaky material. The following day, March 11, at noon, patient expelled an intestinal cast 13 cm. in length. That same evening, about 9 P. M., he entered into a profound collapse, from which he rallied, and the next morning, after a very severe straining effort, passed another cast measuring 42 cm. in length. For some time afterward the stools contained considerable blood, bright red in color.

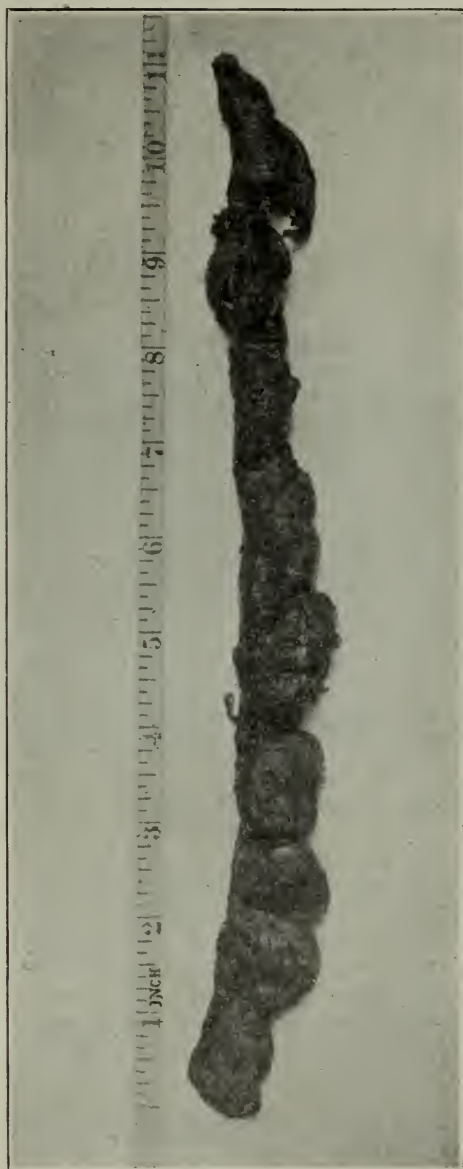
The pathological report by Drs. Stokes and Rohrer on these casts is as follows:

Macroscopic Description.—There are two specimens—one small, 13 cm. in length, 2.5 cm. in breadth, dark red in color, and segmented; the other large, 42 cm. in length, 4 cm. in breadth, irregular in outline, as if to correspond with the sacculations of the large intestine—grumous in appearance.

Specimens under the microscope consist of a mass of red-blood corpuscles and many polymorphonuclear leucocytes. By Weigert's method strands of fibrin can be stained, but no bacteria are seen. There is no evidence of any mucous membrane present. Cultures from diseased colon showed colon bacilli and a few chains of streptococci. Tubercle bacilli were not present. No ameba coli were found in the stools. Temperature was never over 100°, and for the last week was subnormal, falling as low as 94° on the day before he died. Repeated examination of the blood for Widal reaction and malaria were negative. The red-blood count was 2,530,000; leucocytes were normal; urine was scant, highly colored, and contained large quantities of indican, otherwise negative. A small mass was detected by palpation in his abdomen, situated about midway between the umbilicus and the crest of the ilium on the right side.

The dysenteric symptoms persisted, the patient rapidly becoming more and more emaciated and exhausted. On March 17 patient began to be delirious. All symptoms gradually became more marked until the 25th, when he passed into a semi-comatose condition, and died from asthenia the 27th day of March.

No references were found in literature on the subject of intestinal blood casts. When we consider the frequent hemorrhages in ulcerative conditions of the intestines, it is not at all unreasonable to suppose that the occurrence of blood casts in the stools is a common feature of the disease. However, clinical reports fail to bear out this assumption, and therefore their presence must be regarded as an extremely rare and unique manifestation. Casts approxi-



INTESTINAL BLOOD - CAST.—DR. BECK'S CASE.

mating the size of these and presenting grossly a somewhat similar appearance, but differing morphologically, have been described.

Fayrer relates a case in which a tubular slough, about a foot long, was discharged. Dutrouleau reported the observation of a case of gangrenous dysentery, with the expulsion of a portion of intestinal mucosa fourteen inches long. The patient recovered.

It is quite evident from the clinical history that the cast in this case had its origin in a hemorrhage from an eroded vessel, which caused the extreme shock of the patient and which preceded by twelve hours the expulsion of the cast.

ETIOLOGY.

In 1886 Hlava believed dysentery to be caused by a micro-organism, and in studying the disease bacteriologically was able to isolate nineteen different organisms from the intestinal canal of patients suffering from the disease. He, however, was unable to produce the disease experimentally in animals from any of the isolated organisms, and, therefore, concluded that it was non-bacterial in origin. Since his investigation numerous organisms have been isolated. Among these the following varieties are definitely known to be capable of producing dysentery: *Bacillus dysenteriae*, *bacillus proteus*, *bacillus pyocyaneus*, *staphylococcus pyogenes aureus*, and *ameba coli*.

Booker isolated streptococci in a large number of cases of enterocolitis in children.

Celli and Fiocca state, from a study of sixty-two sporadic and epidemic cases, that streptococci are capable of producing dysentery either singly or in combination with other organisms. They consider *bacterium coli dysenteriae* to be a variety of *bacterium coli commune*—a variety that, being acted upon by other bacteria, including streptococci, assumes a most virulent character.

Calmette places the greatest pathogenic importance upon the *bacillus pyocyaneus*. He states that the pathogenic effects of this organism are increased by the presence of streptococci.

Bertrand and Baucher, who studied an epidemic of dysentery among the troops stationed at Cherbourg, found, together with a number of bacteria in the discharges, two varieties of streptococci.

Babes has cultivated streptococci, *proteus vulgaris*, and other organisms from dysenteric cases.

Celli expressed the idea that the primary injury to the intestine is produced by the toxin of the *bacillus dysenteriae*, which is followed by the injurious action of pyogenic cocci contained within the intestines.

Ciechanowski and Norrak found a large number of streptococci in the stools of cases of sporadic dysentery.

Zancoral studied 100 cases of abscess of the liver, which, in fifty-nine cases, were preceded by dysentery. In twenty-two cases the blood was examined during life, and the streptococcus was ob-

tained in twelve cases. He studied the pus of the liver abscess in thirty-six cases, and found streptococci in thirteen instances. Zancoral claims that when fecal material, either containing ameba or free from ameba, is injected into the intestines of cats, typical ulcers are found. Streptococci can be stained in these ulcers and in the liver. In four out of eight experiments in which streptococci were injected into the intestines he produced ulcers. Streptococci were found in the various viscera as well as in the intestinal ulcers.

Kruse and Pasquale found the streptococci in 50 per cent. of cultures made from the fresh dysenteric stools and abscesses of amebic cases.

Lewkowics found a micrococcus to which he applied the name "enterococcus." In one of the cases he relates the dysentery was complicated by meningitis. He found the organism in the fluid of



GROSS SPECIMEN OF DESCENDING COLON SHOWING ULCERS.
BR. BECK'S CASE.

spinal puncture. This organism was a capsulated streptococcus, and closely resembled the pneumococcus.

The following is a condensed report from the autopsy record by Drs. Stokes and Rohrer:

Macroscopic Description of Large Intestine.—The cecum, the ascending colon, and transverse colon are practically normal. The descending colon, sigmoid flexure, and the rectum contain numerous ulcers varying in length from .5 cm. to 2.5 cm. Some extend lengthwise, while others encircle the lumen of the gut. The base of the ulcers is covered by a dark-gray pseudo-membrane or by dirty-grayish necrotic material. The viscera show cloudy swelling, and the intestinal lymphatic glands are greatly swollen.

Bacteriological Examination.—Cover-slip preparations from the large intestine fail to show tubercle bacilli or ameba coli. Cultures

from the large intestine grew numerous colonies of the colon bacilli, and a moderate number of streptococci were found in the water of condensation.

Microscopic Examination.—The ulcers are covered by a thick layer of fibrin or by a mass of coagulative necrosis containing necrotic cells. The submucous coat is swollen, and consists of a loose network of fibrous tissue containing numerous cells belonging to the various types of fixed tissue-cells. The small veins and capillaries frequently contain fibrinous thrombi, but there are very few pus-cells present. In several places the superficial network of fibrin has penetrated into the submucosa, forming an irregular meshwork of fibrils, including many pus-cells.

The kidney showed intense cloudy swelling, and the liver contained many focal collections of cells resembling beginning focal necrosis. A lymph gland attached to the descending colon consisted entirely of masses of coagulative necrosis, and many of the adjacent lymphatic glands show hyperplasia of their elements resembling a lympho-sarcoma. A mass about the size of a small orange proved to be lympho-sarcoma.

In order to study the method of infection some of the sections were stained by Weigert's method for bacteria. The superficial layer of necrosis of the ulcer contained many diplococci, and showed chains of streptococci, mixed with numerous large and small well-stained bacilli, and a similar condition was made out in the adjacent necrotic lymphatic gland. The veins in the adrenal gland and the kidney contain numerous groups of streptococci.

From the study of these sections it seems evident that the streptococcus has played a considerable rôle in the production of the ulcers. It also invaded the adjacent lymphatic glands and reached the circulating blood, as evidenced by the presence of streptococci in stained specimens in the veins of the adrenal gland and the kidney. The condition can, therefore, be considered as an ulcerative colitis, associated with an abdominal lympho-sarcoma, and due, in all probability, to a terminal infection of streptococci.

AUTOPSY.

Body Section.—Heart and great vessels normal. Lungs normal; no pleuritic adhesions. Vermiform appendix normal; no Meckel's diverticulum.

Small Intestine.—Healed ulcers, which encircle the gut, and show as pale, elevated areas at long distance from each other throughout the small intestine. Ilium adherent to large bowel at points where latter is ulcerated; Peyer's patches normal; no perforation of small intestine; no obstruction; no peritonitis.

Mesenteric Lymph Glands.—Enlarged; mesentery contains two sarcoma-like nodules, one the size of a walnut, the other the size of an orange.

Retroperitoneal Glands.—Also enlarged.

Large Intestine.—Cecum, ascending and transverse colon normal, save a small ulcer here and there.

Descending Colon, Sigmoid Flexure, and Rectum seat of extensive ulceration. These ulcers are very numerous, and vary greatly in size, direction, and extent. Some measure .5 cm. in length, others 2.5 cm.; some extend lengthwise of the intestine, others encircle it. The depth of the ulcerated areas varies. Some have their base in the muscularis mucosae, the majority, however, in the submucous coat. At no point had perforation taken place, and on the peritoneal surface the larger ulcers show as dark, gangrenous-looking areas, to which the small intestine was adherent. Were it not for this fact perforation and peritonitis would undoubtedly have taken place. In addition to the ulcers, the bowel is intensely inflamed. The morbid conditions are more marked in the descending colon than in the sigmoid



SECTION SHOWING EDGE AND BASE OF ULCER OF THE COLON.
DR. BECK'S CASE.

flexure. The rectum is the seat of a most interesting condition. The ulcers here, while not so numerous, are quite large, some measuring 2.5 cm. in length and extending transversely to the long diameter of the gut. One very large ulcer is situated at the base of the prostate, another just within the anal orifice. The mucosa is covered by a false membrane, and the inflammatory redness is quite marked. Several internal hemorrhoids, quite small, but which are thrombosed, are seen just within the anal margin.

Stomach, Esophagus, Liver and Pancreas are all normal.

Spleen.—Large, softened, capsule thickened, and contains lime salts. On gross section Malpighian corpuscles stand out in bold relief.

Kidneys.—Large, white, full of blood. Capsule strips easily. On section, kidney drips blood, and the overdistended vessels are plainly visible.

Adrenals.—Cloudy swelling, and medulla has broken down.

Bladder.—Normal; full of straw-colored urine.

Prostate Gland.—Thrombo-phlebitis of prostatic plexuses.

Seminal Vessels.—Distended. Right vesicle contains numerous, fully-developed spermatozoa; left vesicle contains a fluid rich in epithelial cells, but no spermatozoa are present.

Testicles.—Right testicle normal; left testicle atrophied to a small fibrous nodule the size of a cherry. There were no scars on the penis.

ANATOMICAL DIAGNOSIS.

1. Ulcerative colitis and proctitis.
2. Lympho-sarcoma of mesentery.
3. Large white kidney.
4. Peri-splenitis, with calcareous deposits.
5. Atrophy of left testicle.

BACTERIOLOGICAL EXAMINATION.

Smears were made from ulcerated spots in intestines, and contained numerous bacilli and a few short chains of streptococci. Tubercle bacilli were not present. On culture, organs (liver, spleen, and kidney) were sterile, but from the ulcerated intestine the colon bacillus was isolated. The blood-serum tube from the intestine contained numerous discrete colonies of the colon bacillus, and no colonies of streptococci could be found, but the water of condensation contained a moderate number of short chains of streptococci.

HISTO-PATHOLOGY.

Ulcer of Rectum.—The base and overhanging edges of the ulcer are covered by a thick layer consisting of fibrin. The superficial portion of the ulcer, when stained by Weigert's method, contains groups of micrococci, at times in pairs. There are no chain formations, however. The majority of the organisms present are bacilli about the size of diphtheria bacilli, and staining blue by this method. There are also other bacilli in the necrotic mass about the size of Welch's gas bacillus. Fibrin stains by Weigert's method. In the meshes of this layer, in places, are collections of cells with vesicular, light-staining nuclei, surrounded usually by considerable eosin-staining protoplasm. This superficial layer, as a rule, however, is free from any cellular admixture. The mucous membrane has entirely disappeared beneath this layer. The submucous layer consists of a loose network of fibrous tissue containing numerous cells of different types. There are many large cells with large, oval nuclei, surrounded by considerable protoplasm. Then there are cells with smaller vesicular nuclei, surrounded by a moderate amount of protoplasm. These two varieties of cells, combined with many small lymphocytes, form large, mixed groups throughout the submucosa, but in the deeper layers all these kinds of cells can be made out in the distended lymph spaces. The capillaries and small veins frequently contain thrombi, consisting of a meshwork of fibrin containing a few lymphocytes and cells, resembling proliferated endothelial cells. The perimyrium

of the muscular coats is also thickened by an increasing number of cells similar to those described above. There are a few polymorphonuclear leucocytes to be seen in the different layers of the intestine. The blood-vessels in the muscular coat contain an excessive number of small and large lymphocytes. There are also present a moderate number of cells with large, vesicular, lightly-staining nuclei and considerable protoplasm. These resemble in structure the endothelial cells still adherent to the intima of the blood-vessels.

Small Ulcer in Colon.—The mucous membrane has entirely disappeared, and is replaced by a layer consisting almost entirely of necrotic cells. The outlines of the protoplasm is still apparent, but almost all of them have lost their nuclei. The submucous coat is thickened and richly infiltrated by an admixture of cells similar to that described above. Many of the lymph spaces contain thrombi of fibrin. In one portion of the submucosa, midway between the layer of coagulative necrosis and the muscular layer, there is



SECTION OF NORMAL COLON OF A CHILD.

an acute inflammatory deposit consisting of a network of fibrin containing many polymorphonuclear leucocytes.

Enlarged Lymph Gland Adherent to the Colon.—This gland has entirely lost its normal structure, and consists of a mass of coagulative necrosis in which the protoplasm of numerous degenerated cells, without nuclei, can be made out. There are areas throughout the gland consisting of a fine network of fibrin. There are also granules of nuclear fragmentation present.

When stained for bacteria by Weigert's method the gland contains large masses or scattered groups of dark-blue bacilli, with a few larger organisms resembling the gas bacillus. No streptococci are present. The larger gland showed the structure of a lympho-sarcoma.

Spleen.—There is a well-marked peri-splenitis, but the organ is otherwise normal.

Kidney.—The glomeruli are normal, but the epithelium of the convoluted tubules shows marked degeneration. Many of the cells have lost their

nuclei, and the protoplasm is changed to a granular degenerated mass. At times the entire cross-section of a convoluted tubule consists of a mass of broken-up, degenerated epithelium. The limbs of Henle contain hyaline casts, and the capillaries of the medullary portion of the kidney are distended by red-blood corpuscles.

Liver.—Contains a few focal collections of cells consisting of small lymphocytes and cells with round or oval vesicular nuclei, surrounded by considerable protoplasm. The capillaries of the liver contain an increased number of small lymphocytes. There are no distinct areas of necrosis, but these focal collections of cells are usually situated midway between the center and the periphery of the lobule. Many of the liver-cells are bile-stained, and a few contain vacuoles of fat. The portal systems also contain collections of cells similar to those mentioned above.

Pancreas.—The pancreas is normal.

Testicle.—Shows chronic interstitial orchitis, well-marked chronic endarteritis of the arteries, and the epididymis consists of a fibrous cord in which a number of ducts are seen resembling in appearance the intracanalicular adenomata of the mammary gland.

The subsidiary cause of this condition was the lympho-sarcoma, which produced a lessened resistance of the intestinal tissues. Although the most recent technique for the isolation of the bacillus dysenteriae was not practiced, the pathological condition was not that usually found in epidemic dysentery. The streptococcus seemed to play the leading rôle in the causation of the intestinal lesions, and also entered the circulation, causing infection and death.

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The illustrations of this article are from photographs made by Dr. S. Butler Grimes and Dr. J. S. Fulton.

PERMANENT LEFT HEMIANOPSIA, SEQUEL OF PUERPERAL ECLAMPSIA.

By Hiram Woods, M.D.,

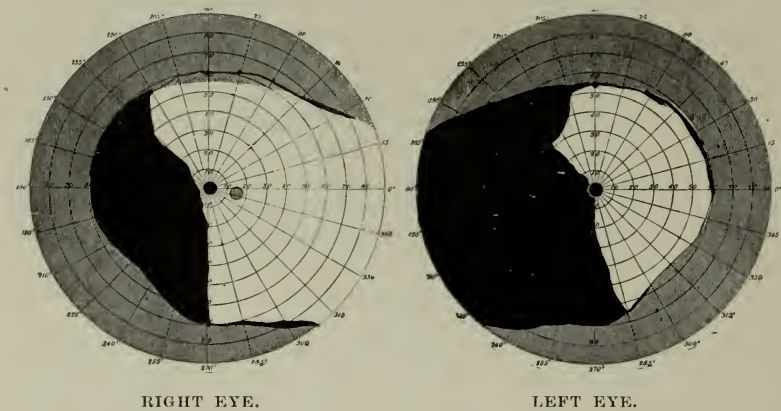
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READ BEFORE THE AMERICAN OPHTHALMOLOGICAL SOCIETY AT ITS THIRTY-EIGHTH
ANNUAL MEETING, NEW LONDON, CONN., JULY, 1902.

THE following case came under my care in September, 1901, through the kindness of my friend, Dr. J. Whitridge Williams of Baltimore, professor of obstetrics in the Johns Hopkins University:

Mrs. X., thirty-three years of age, in good health save for the condition of her eyes, had 20/15 central vision in each eye, refraction error being only 0.5 D. H. Accommodation showed a near point of six diopters. Perimetric examination revealed the fields illustrated in Figs. 1 and 2. In each eye there is left hemianopsia, complete save for a small area above near the median line. The line of separation between the seeing and blind halves in the inferior fields cuts the median line in the right eye, while in the left it encroaches upon the nasal half to about 15°. The greatest interest in the case lies in the history. Mrs. X. was confined with her first child on March 17, 1900. Her previous health had been excellent, and the period of gestation showed nothing abnormal until traces of albuminuria were found in the sixth month, and persisted through the rest of the pregnancy. On the morning of the 17th Mrs. X. ate her breakfast with relish, and felt well. Between 9 and 10 o'clock, while returning from the toilet to the bedroom she became confused and "lost her way." She was giddy, and did not know where she was. Her husband, a physician, helped her to her room. He tells me that there was high arterial tension, flushed face, and, what he specially noted, very rapid dilatation and contraction of the pupils. Bromide and chloral were administered, but about 11 o'clock, after convulsive twitchings of the limbs for some time, there occurred an eclamptic convulsion, lasting, Dr. X. thinks, not over five minutes. His wife recovered from this in a condition of stupor, from which she could not be aroused. Dr. Williams was summoned as promptly as possible, and effected instrumental delivery, under chloroform anesthesia, about 2 P. M. There was but one convulsion. The description of the visual disturbances was given me by Mrs. X. herself. While recovering from anesthesia she seemed to "be seeing through steam," yet there was no trouble in seeing all about her. The next day she was troubled with persistence of retinal impressions. She saw the flowers which were on the wallpaper when she looked out the window; a picture opposite her bed followed wherever she turned her

eyes; the eyes of her attendants, after she had looked at them a moment, appeared where she next looked, etc. For four days these visual disturbances persisted. Occasionally she suffered from severe headache, most marked along the median line. During the night of the fourth day her headache was atrocious. She was treated with hot application, phenacetin, etc., and toward morning fell asleep, in part at least, relieved. Shortly after awakening, and while free from pain, she says, "suddenly, as if some one on my left had pulled down a blind, my sight on the left side went out." From this time Mrs. X. made an uneventful recovery from her confinement; the urine showed nothing after two weeks, and, save for her left hemianopsia, she is a well woman. This defect produces typical disturbances in reading and other work. Objective examination showed nothing abnormal in the eyes. The hemianopsia



was absolute. I tried to make Wernike's test, and thought I obtained slight pupillary reaction to light in the blind fundus, but I could not be sure of it.

Most of the text-books upon obstetrics give more or less attention to ocular disturbances occurring in connection with puerperal eclampsia. There are certain prodromic symptoms, which, occurring in women who are expected to develop eclampsia, indicate that the seizure is approaching. Rapid asthenopia, diplopia, fading of vision with speedy recovery, convulsive movements of the eye, or, as in the case narrated, irregular action of the pupils, are among these warning symptoms. But the most interesting eye troubles are those of vision. They come usually after the seizures, and, as a rule, are in the form of complete loss of sight. I have seen one such case during the eclamptic attack—a woman, twenty-two years of age, in her first confinement, who had seven or eight convulsions. After the second her sight was gone. I saw her a few hours later; pupils were dilated ad maximum, inactive. There was not even

light perception, and the fundus of each eye was normal. She remained blind for four days, and then recovered. A hemiplegia persisted three weeks. There have been two pregnancies since and no trouble. This is the usual type observed in this rare disease, eclamptic blindness. Hemianopsia, however, is almost unknown. In a fairly exhaustive search of literature by myself and friend, Dr. Johnston, one of our hospital staff, but one reference to it has been found. Dr. Williams furnished me with this. It is a report made by Dr. G. Knapp. The following translation of Knapp's observation is from the *Prager med. Wochenschrift*, 1901, No. 21:

"Compared to amaurosis, which is frequently observed in eclampsia, hemianopsia is a rare occurrence, which has thus far been described but twice. Knapp's patient was a 27-year-old primipara, who was brought to the clinic in coma, and delivered by version and extraction after dilatation of the cervix with Bossi's instrument. When consciousness returned she complained of disturbances of vision. The right halves of the visual fields showed themselves to be disturbed up to the middle line, as in them the hand could be seen only as if in the thickest fog. The symptoms disappeared within the next few days.

"According to F. Pick, it resulted from a toxic paralysis of the central tracts of the optic nerve, with more marked involvement of one hemisphere, so that after the disappearance of the amaurosis, which at first is always present, hemianopsia can remain for a longer or shorter time. The well-known half-sided motor disturbances which occur in uremia confirm this view."

The hemianopsia in this case was temporary. If there is on record another case of permanent hemianopsia from puerperal eclampsia, I have not found it.

The pathogenesis of the trouble is not entirely clear. Absence of any and all other nerve disturbance justifies one in assuming a nuclear lesion. We can, possibly, study with advantage some of the modern teachings concerning the etiology and pathology of puerperal eclampsia. I shall go over this briefly, referring anyone specially interested in the reasons for the conclusions given to such works as the *American System of Obstetrics* and other authorities. Among such I doubt not that the forthcoming work of Dr. Williams upon obstetrics will take a high place. The author has kindly put at my disposal some of the advance sheets of this work, and it is from these and the *American System* that I quote. Uremia is not accepted as either the basal or chief cause of puerperal eclampsia. Absence of convulsive seizures in nephritics, occurrence of them in women without or with only slight lesion of the kidney, essential differences in the renal from the puerperal convulsion—these are among the reasons for abandoning the teaching that nephritis is the cause of eclampsia. From the pages loaned by Dr. Williams it appears that in 1886 Jürgens and Klebs pointed out the

existence of a hemorrhagic hepatitis in certain cases of eclampsia. Others observed similar changes, until in 1893 Schmorl published a monograph based upon seventeen autopsies of women dead of eclampsia. He found in every case lesions of the liver, which he considered more characteristic than those observed in the kidneys. These consisted of irregularly-shaped reddish or whitish areas scattered throughout the liver, but particularly marked in the neighborhood of the smaller portal vessels. They are areas of necrosis, and their formation was attributed to degenerative changes following thrombotic processes in the smaller portal vessels. The same findings were recorded from time to time by others, and in 1902 Schmorl again published them as occurring in seventy-one of seventy-six autopsies. Many European observers have accepted them as the most constant eclamptic pathological change, and consider that the entire process is due to an impairment of the hepatic function (hepato-toxemia). Dr. Williams records a number of his own autopsies, in which the hepatic findings were constant. Similar changes are observed less constantly in the brain. Concerning this Dr. Williams says: "Various statements are made concerning the pathological findings in the brain, edema, hyperemia, thrombosis, and apoplexy being described as the main lesions. Prutz noted edema in 42 per cent., hyperemia in 35 per cent., apoplexy in 13 per cent., while the brain was apparently normal in 10 per cent. of his cases. Schmorl noted in fifty-eight out of sixty-five autopsies the presence of thrombi in the smaller cerebral vessels, and regarded them as the cause of the small areas of necrosis which are so often observed." Dr. Williams concludes his study of the pathology as follows: "The main lesions of eclampsia are found in the liver, kidneys and brain, although those in the liver are most characteristic. Either we have included under the term 'eclampsia' a number of different diseases, each with different anatomical lesions, or, what is more probable, we have to deal with a disease which is caused by some as yet unknown poisonous substance circulating in the blood, which may give rise to lesions of varying intensity in the different organs."

This view of the pathology of eclampsia throws, it seems to me, light upon the ocular disturbances. We are dealing with a poisonous substance in the circulation, probably of hepatic origin, capable of producing decided nerve disturbances, which, as a rule, recover if the woman lives. But this poison may produce thrombi of smaller vessels, lead to areas of necrosis, and thus bring about permanent defect. The blindness, which comes like an avalanche, completely recovering in a few days, is most probably the result of the poison without organic change. As the poison is eliminated its effects cease. But in a few cases thrombosis destroys a limited area, and if this area happens to be a part of the brain which has important function, that function is irreparably lost. And so, it seems to me, is the hemianopsia in my case most probably explained.

Current Literature.

REVIEW IN MEDICINE.

Under the Supervision of Thomas R. Brown, M.D., Baltimore.

THE VALUE OF LUMBAR PUNCTURE AND SUBDURAL INJECTION IN DIAGNOSIS AND TREATMENT.

In the *Centralblatt für die Grenzgebiete der Medizin und Chirurgie* for July 23, 1902, is found a series of extremely interesting articles in digest regarding cyto-diagnosis, lumbar puncture, subdural injection, intra-arachnoideal injection, and rachicocainization.

Faisans describes two cases of tuberculous meningitis with aphasia and hemiplegic paralysis. In both cases large numbers of lymphocytes were found in the spinal fluid, which spoke in favor of the condition being tuberculous. The post-mortem examination confirmed the diagnosis, for, besides the typical basal exudate, tubercles were met with in the upper parietal region.

Breuer (*Wiener klin. Rundschau*, 1901, No. 41) gives his observations upon this point. The method employed by him was as follows: The fluid obtained by puncture was allowed to remain perfectly quiet for from three to six hours, after which the deposit was placed upon a glass slide and broken up carefully by means of a glass rod. After drying, the preparation was stained in the usual way, after having been treated with absolute alcohol and xylol to prevent the opacity of the fibrin from obscuring the field. In seventeen cases examined by this method tubercle bacilli were found without difficulty.

Debove discusses the influence of lumbar puncture upon gastric crises. According to him, neuralgic pains are to be ascribed frequently to an increased pressure in the cerebro-spinal canal, as, for example, in the case of the lightning pains in tabetics. Debove, in the case of a man with severe gastric crises in tabes, drew off 30 c. cm. of the spinal fluid, and this was followed by an immediate cessation of pain. The same result was obtained in the case of a patient of Tuffier's, who suffered with severe gastric pain and vomiting. The removal of 20 c. cm. of the spinal fluid brought complete relief, although only three days previously a subarachnoid injection of cocaine had brought no relief.

Marie and Guillain report the case of a man with chronic parenchymatous nephritis and cardiac hypertrophy, and who had exhibited for several days certain uremic manifestations, such as severe headache, apathetic mental condition, and dyspnea. Lumbar puncture was performed, and an increased pressure of

the cerebro-spinal fluid demonstrated. After the removal of 6 c. cm. of the fluid the headache disappeared in a short time. According to the authors, the uremic manifestations of nephritis may be due either to an intoxication or to an increased tension of the cerebro-spinal fluid, and to the latter are to be ascribed the severe headaches and the transitory amauroses, although, of course, a much larger number of observations will be necessary before this proposition is established.

Le Gendre reports an equally successful result after the withdrawal of 14 c. cm. of cerebro-spinal fluid in the case of a painter with arterio-sclerosis and arterio-sclerotic kidneys, who suffered with severe headaches.

Babinski in this connection reports an extremely interesting case of a patient who showed all the symptoms of a brain tumor, vomiting, papillitis, and headache, who was cured by the trephining of the skull, and he therefore has regarded the condition as very possibly due to edema of the brain.

In a later communication, Marie gives as his belief that the result of this procedure is probably only noted in the comparatively early and less intense form of the disease, while in the convulsive form of uremia he thinks that its efficacy will be, in all probability, slight.

Widal, in discussing the treatment of visceral and intercostal neuralgias by the epidural method of analgesia, recommended by Sicard, states that he has by this method cured a severe case of sciatica of several months' duration, as well as a case of intercostal neuralgia. He injected in these cases 2 centigrams of cocaine, while he obtained equally good results by the injection of 3 centigrams of cocaine in a patient suffering severe gastric pains due to gastric ulcer.

Souques confirms the favorable results of Widal with the epidural method.

Achard and Laubry recommend the injection of 1 centigram of cocaine intra-arachnoideally, 2 centigrams extra-arachnoideally. After this procedure various phenomena were noted, such as dizziness, headache, vomiting, slight temperature increase, diarrhea, and sweating in some of the cases, especially in old and atheromatous individuals, while in two cases a facial herpes made its appearance after the injection. In eight cases Achard and Laubry have employed the intrameningeal and later the extrameningeal injection into the sacral canal, the former of which appeared more effective, the latter the easier to perform.

Gillain reports the case of a tabetic who complained of violent, burning pains in the lower thoracic region. An examination demonstrated a zone of hyperesthesia and hyperalgesia corresponding to the eighth and ninth dorsal nerves. A lumbar puncture was performed, 2 c. cm. of spinal fluids were removed, and one-half a centigram of cocaine was introduced intramenin-

geally. Five minutes later the pain and hyperesthesia had disappeared, and this improvement persisted.

Marie and Guillain report a case of lumbago instantly cured by an intra-arachnoideal injection of 5 milligrams of cocaine; also a case of scapular neuralgia in which the pain disappeared, but subsequently returned, which the authors ascribe to the small dose of cocaine used and the considerable distance between the place of injection and the root of the affected nerve; and a case of rheumatic pains in the sacral region in which the treatment gave absolutely negative results. According to the authors, the subarachnoideal injections of cocaine are only useful in case of pains in the nerves or muscles, but not in the case of pains in the joints or bones. They regard the injections of such small doses as absolutely free from danger. All the articles which have been reviewed above, and which have not been otherwise noted, appeared in the *Journal of the Société médicale des hôpitaux* during the year 1901.

Albarran and Cathelin (*Comptes rendus de la société de biologie de Paris*, 1901, July 13) give the result of their experiments upon the analgesic effect of epidural injections of cocaine upon the painful affections of the bladder. Both authors come to the conclusion that 2 to 3 centigrams of cocaine injected in a one-half per cent. solution will very often cause a diminution of the pain and of the sensitiveness of the bladder. They report four cases of incontinence of urine due to various causes in which after one or several injections of cocaine voiding of urine could be voluntarily controlled.

Ver Hoogen (*Journal médicale de Bruxelles*, 1901, No. 38) considers that the injection of cocaine into the spinal canal has proven of great value both in surgery and medicine, with especial success in sciatica, lumbago, and the lightning pains of tabes. On account of the difficulty of the procedure, however, it cannot as yet be recommended for general use. Ver Hoogen recommends the method of epidural injection employed by Sicard.

Chaput (*La Presse médicale*, 1901, No. 90) discusses general anesthesia by means of rachicocainization. He claims that by the dural application of cocaine, even in very small doses, may be obtained a more or less complete anesthesia of the lower half of the body, while for the anesthesia of the upper extremities also the dose of cocaine must be increased to 4 centigrams. With higher doses anesthesia of the face and head may be obtained, but in operations upon the face intraspinal cocainization should only be employed in those cases where there are absolute contraindications to ether or chloroform. As isotonic solutions appear less diffusible than watery solutions, the latter are more valuable in producing anesthesia.

Guinard (*La Presse médicale*, 1901, No. 91) recommends that in cocainization of the spinal cord the vehicle in which the cocaine is introduced should be the cerebro-spinal fluid of the patient so treated, as he believes that many of the unpleasant effects ordinarily met with are due to the water introduced with the cocaine. He reports seventy cases treated by his method with no evil results.

Péderprade (*Thèse de Paris*, 1901) reports sixty observations of subarachnoideal injection of cocaine, which, according to him, is absolutely free from danger. The cocaine solution is sterilized by being heated for one-half hour at 120° C. He believes the method is contraindicated in the case of children, drinkers, and extremely nervous individuals, while it is especially indicated in those conditions in which the usual methods of general narcosis are dangerous, as conditions of great weakness and affections of the heart, lungs, or kidneys.

Porak and Guéniot (*Bull. de l'académie de médecine*, Vol. XLIV) consider the method of medullary anesthesia in labor cases, and from their five reported observations reach the following conclusions:

1. With injections of 1 to 2 centigrams of cocaine into the dural space, the uterine contractions were rendered painless in from five to ten minutes.
2. With 7½ milligrams, contractions were painless within twenty-seven minutes.
3. Complete analgesia lasts from one hour and twenty-three minutes to two hours and fifteen minutes with doses of from 1 to 2 centigrams.
4. After the injection the contractions became more energetic, more frequent, and lasted longer.
5. In the period between contractions the uterus remains in a half spastic condition.
6. The loss of blood is less.
7. The procedure does no harm to the fetus.
8. The associated manifestations, such as vomiting, are free from danger and last a short time.
9. Contraindications are diseases of the heart and blood vessels, of the respiratory apparatus, of the nerve centers, especially brain tumors, energetic and frequent uterine contractions and indications for version.
10. Especial indications for the method are severe pains, necessity for operation, slow labor on account of weakness, and tendency toward hemorrhage.

* * *

THE ARTERIAL LESIONS IN ACUTE RHEUMATISM.

Rabé (*La Presse médicale*, September 27, 1902) gives his results in regard to the arterial changes noted in acute articular rheuma-

tism. The case in which these most careful observations were made was one of a child who died during an attack of articular and visceral rheumatism. The coronary arteries showed lesions, which were undoubtedly due to the direct action of the rheumatic poison.

The conclusions which he reaches in this connection are as follows:

1. Acute rheumatic infections may affect arteries of every caliber, and may provoke a proliferating endarteritis and mesarteritis.

2. This latter lesion, characterized in certain cases by disintegration of the protoplasm with vacuolization of the smooth muscle fibers, may be regarded as a reticular or alveolar condition of the middle coat of the artery.

3. This parenchymatous mesarteritis is the expression of a highly virulent infection.

4. This condition may favor the formation of parietal thromboses and may play an important rôle in the pathogenesis of the cardio-vascular collapse frequently met with.

6. The cicatrization of this lesion may lead to a sclerotic condition of the vessel wall, and thus acute articular rheumatism must be considered as one of the possible etiologic factors in general arterio-sclerosis.

* * *

STATES OF INCREASED INTRACRANIAL TENSION.

Cushing (*American Journal of the Medical Sciences*, September, 1902) gives the results of his experiments and clinical observations concerning states of increased intracranial tension. After reviewing the work which has been done on this subject, Cushing describes in detail the apparatus used by him, and follows this with a detailed account of his experiments and the clinical observations on the cases studied. He concludes as follows:

"In the first place, the venous stasis, which becomes apparent on but a moderate increase of the tension, fortunately gives early evidence of itself in the eye-grounds, except in those cases of local compression, in posterior basic meninges, for example, so remotely situated that the compression effects are not readily transmitted as far as the cavernous sinus and ophthalmic veins. Furthermore, local pathological processes, such as are confined to the hemispheres, may be responsible for local circulatory disturbances sufficient to cause a cessation of function of a large part of the forebrain without leading in any way to a corresponding implication of the medulla. When, however, the local process is in the near proximity of, or, if remote, when its effects are so far-reaching that the vital centers of the bulb are compromised, the one symptom which with regularity is called forth, and which betokens a serious alteration in the local circulation, is a persisting rise in blood pressure, which may or may not be asso-

ciated with a pronounced vagus pulse, with rhythmic alterations in blood pressure and with a retardation or periodicities of the respiration approaching a Cheyne-Stokes type.

"The first and minor symptoms of compression are found in association with varying degrees of intracranial venous stasis; the major symptoms of 'Hirndruck' with an approaching capillary anemia of the medulla."

* * *

A RAPID REACTION FOR BENCE-JONES ALBUMOSE.

Boston (*American Journal of the Medical Sciences*, October, 1902), after calling attention to the fact that but few of the tests usually employed distinguish clearly between peptones and the Bence-Jones albumose, describes a rapid method of making the reaction, this reaction depending upon the presence of loosely-combined sulphur, which, when treated by Boston's method, causes the lead to be precipitated in the form of lead sulphide. The method is as follows:

1. Fifteen to twenty c. c. of the filtered urine are placed in a test tube, and to it an equal quantity of a saturated solution of sodium chloride is added, and the tube shaken to effect a perfect mixture.
2. Two or three c. c. of a 30 per cent. solution of caustic soda are now added, shaking vigorously.
3. The upper one-fourth of this column of liquid is gradually heated over the flame of a Bunsen burner to the boiling point, when a solution of lead acetate (10 per cent.) is added, boiling the upper previously heated stratum of liquid after each additional drop.
4. When the drop of lead solution comes in contact with the liquid a copious pearly or creamy cloud appears at the surface, which becomes less dense as the boiling point is neared, and when ebullition is prolonged for from one-half to one minute the upper stratum shows a slight browning, which deepens to that of a dull black.

The lower portion of the heated liquid displays less marked blacking, and below this point for some distance there is seen a variable degree of browning. Standing intensifies the reaction, but if this be prolonged for several hours the black precipitate falls through the clear stratum of liquid, collecting as a coarsely granular pigment in the bottom of the tube.

This reaction has been studied in the urine of myeloma—dilution, one part in ten, and often a much higher dilution gave positive results. It depends upon the presence of loosely-combined sulphur—a constituent of Bence-Jones albumose—which, when treated as above outlined, causes the lead to be precipitated in the form of lead sulphide. Phosphates, when present in excess, may cause a slight, flocculent, brown precipitate upon addition of the soda solution, but this browning is not of sufficient intensity to be mistaken for that of albumose.

SURGERY.

*Under the Supervision of Hugh H. Young, M.D., Baltimore,
Assisted by H. A. Fowler, M.D.*

INFLUENCE OF ROENTGEN RAY ON SARCOMATA. Wm. B. Coley.
American Medicine, August 16, 1902.

There have been but a few cases of treatment of sarcoma by Roentgen ray reported. Williams has reported one case of the spindle-celled variety which showed marked improvement. Pusey has only three cases of sarcoma in his list of twenty-four cases treated by Roentgen ray reported in *Journal of the American Medical Association* for April 12, 1902. Of these, two were relieved from pain, but otherwise unimproved, while the third, an inoperable round-celled sarcoma of the neck, was improved to the extent that the tumor entirely disappeared.

Beck, in the *New York Medical Journal* of November 16, 1902, reports a case of recurrent melano-sarcoma which was greatly improved, but the condition was too far advanced to expect a cure. The patient ultimately died.

The next case in point of time was that treated by Skinner and reported by Kirby. This is a case of round-celled sarcoma in a patient sixty-four years old. At the time of commencement of x-ray treatment examination showed a large tumor occupying the greater part of the left mastoid and cervical regions measuring ten inches vertically and seven inches laterally. In the incredibly short time of six weeks the tumor had entirely disappeared and the patient was entirely cured. Seven months later examination showed a large cicatrix $2\frac{1}{2} \times 3\frac{1}{2}$ inches, but no trace of recurrence.

The above list of recorded cases is a small one. The author then gives briefly the histories of ten cases of sarcoma under his care which were given the x-ray treatment. To these are added four cases of inoperable sarcoma which were not benefited by toxin treatment.

These cases are very interesting in showing the effect of x-ray treatment in various forms of sarcoma occurring in various regions. In many of the cases x-ray treatment was combined with toxin treatment. An analysis of the fourteen cases shows the following: Apparent cure in four cases, improvement in seven cases, no change in three cases.

Case I. Inoperable round-celled lymphosarcoma of the neck, pectoral region, and axilla in a female aged forty-five. The original tumor just above the clavicle was removed. There was a recurrence in the neck and the axilla. The axillary tumor was later removed, but the growth in the cervical region was considered inoperable. Toxins were used for six months. During the first three months improvement was marked, but in spite of further injections improvement ceased. Finally, when death seemed inevitable, x-ray treatment was begun as an experiment. Within

three weeks a marvelous change had taken place. The patient left the hospital entirely well five months after x -ray treatment was begun. This is the most remarkable case of the series.

Case II. Small round-celled sarcoma of the pectoral region in a female thirty-five years old. Combination of x -ray and toxin treatment employed. Patient had two operations. At the second one it was found impossible to remove the whole growth. This case was considered hopeless by M. Richardson. The patient left the hospital apparently perfectly well.

Case III. Small round-celled sarcoma of gracilis muscle, four times recurrent. Treatment with living cultures of erysipelas and toxins were used in addition to x -ray treatment.

Case IV is, perhaps, the most remarkable case yet reported, showing the influence of x -rays on sarcomata. This is a case of small round-celled sarcoma of the neck in a man of sixty years, six times recurrent. The patient was under x -ray treatment six weeks in all. There was no recurrence four months after the disappearance of the tumor.

In the seven cases showing marked improvement, one showed a great diminution in the circumference of the tumor, but later developed metastases to the lung. In the second, a small round-celled sarcoma of the back in a child of eight years, the tumor has entirely disappeared. The third was of the spindle-celled variety, involving the upper jaw.

The four remaining cases showing great improvement under x -ray treatment had been under observation for a long time, and had been given the toxin treatment without any apparent benefit. After the employment of the x -rays, however, the improvement was remarkable.

In three cases there was no change. All three cases have been operated on at least twice. The first two were round-celled variety, one in fascia of thigh, the other of the parotid. The third was of the spindle-celled variety, involving the upper jaw.

While none of these cases so far reported can be called cured, they offer strong grounds for encouragement. The class in which x -ray treatment has been employed is the gravest. It seems true that in a certain number of cases we have found a therapeutic agent which will cause the disappearance of the tumor when all other means have failed. The application of this method of treatment will offer new hope in that otherwise hopeless group of cases, sarcoma of the neck. No case of the primary sarcoma of the neck has been seen which has been cured by operation.

A great many opinions have been advanced to explain how the x -rays act in causing the disappearance of large tumors, but as yet no one has offered any satisfactory explanation of their influence on malignant growths.

It would seem that the action of the x -ray upon malignant tumors offers strong evidence in favor of microparasitic origin of such tumors.

It is worthy of note that in two cases of large inoperable round-celled sarcoma which have been made almost to disappear the x -ray treatment was combined with the use of the toxins.

As to the proper limits of x -ray treatment, it is yet in the experimental stage, and should be used only in inoperable cases or those giving rise to great deformities by the operative treatment.

The series of reported cases is too small to justify one in drawing dogmatic conclusions, but the following statements seem to be warranted:

(1) The cases so far treated prove that the Roentgen ray has a remarkable inhibitory action on all forms of malignant growth, particularly sarcomata.

(2) That this action, even in far-advanced, inoperable cases, may result in complete disappearance of the tumor, often without any breaking down of the tissues.

(3) Whether the patients have been cured or the disease has been arrested merely, to reappear at a future date, time alone can decide.

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EXAMINATION OF THE BLOOD IN SUPPURATIVE CASES TREATED SURGICALLY. Küttner. Abstract from *Revue de Chirurgie*, No. 8, 1902.

Curschmann has pointed out that leucocyte counts afford definite information as to the proper time to interfere in cases of appendicitis. Küttner and Brunn have verified this statement in 161 cases, and have at the same time tested the value of Ehrlich's reaction, which depends on the presence of glycogen in the white corpuscles. It is necessary in these investigations to guard against various errors, to make two counts a day, to remember the normal variations in children, in adults, during digestion, etc.

Leucocytosis and Ehrlich's reaction have been of value in acute infections, but not in tumors or in inflammation, chronic or specific.

Even in acute infections the results obtained are demonstrable only where the condition develops rapidly. When the process becomes localized and an abscess is formed the leucocytosis diminishes or disappears; the iodine reaction is less definite.

Thus the leucocyte count can only serve to differentiate between an abscess or a tumor if with a normal temperature one finds at different times an increase in the white cells.

Abscesses uncomplicated by mixed infection never show a leucocytosis.

(1) In appendicitis the results obtained by Küttner accord closely with those obtained by Curschmann and Cabot. When, at the onset of appendicitis, uncomplicated by pneumonia, the number of leucocytes increases rapidly and remains high, after the first few days one can state definitely the existence of pus, and one should operate at once; the temperature matters little. In the same way one meets with a high leucocyte count in those

cases which clinically give the impression of a general peritonitis, but in which some parts of the peritoneum will be found healthy. In cases of this kind Ehrlich's reaction is, perhaps, of more value than leucocyte count, because it disappears more quickly than the leucocytosis if, after interference, the patient goes on to recovery.

(2) What is true in appendicitis is true also in rapidly-spreading phlegmonous suppuration. Here a leucocytosis indicates a rapidly-extending process. On the other hand, a rapid diminution in number of the white corpuscles justifies one in making a favorable prognosis, even when clinically the condition appears very grave. But in cases of rapidly fatal general septicemia, as in general suppurative peritonitis, leucocyte count fails.

(3) The examination of the blood is also important after operations in aiding prognosis. If all goes well and there is no infection, the leucocytes progressively diminish. Occasionally it is best after an operation to make the first dressing at late as possible, for example, after a resection of the knee. In cases of this kind, even though the temperature may remain at 40° C. for the first few days, the leucocytes may drop to normal and healing take place by first intention.

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ON THE AVOIDANCE OF SHOCK IN MAJOR AMPUTATIONS BY COCAINIZATIONS OF LARGE NERVE TRUNKS PRELIMINARY TO THEIR DIVISION. Harvey Cushing, M.D. *Annals of Surgery*, Vol. XXXVI, No. 3, September, 1902.

The present conception of the term "traumatic shock," its method of production, and the means, in certain cases, of avoiding it are briefly summarized as follows:

(1) Term "shock" represents a peculiar state of depression of the normal activities of the central nervous system. The chief factor in producing shock is traumatism to afferent nerve fibers, which, acting reflexly on the vaso-motor mechanism of the medulla, produces marked fall in blood pressure. The diminution of arterial tension is the most characteristic feature of shock.

(2) Injuries to peripheral nerves of moderate severity usually cause a rise in blood pressure. If, however, these injuries are extensive, frequently repeated, or complicated by primary or secondary anemias, they commonly produce a fall in blood pressure. Perfect hemostasis and blocking afferent impulses is the surest means of preventing shock.

(3) Cocaine injected into a nerve trunk central to the proposed site of trauma effectively blocks all sensory impulses.

Two similar cases of interscapulo-thoracic amputation illustrate the above points. In the first case the section of the nerve trunks of the brachial plexus was followed by profound shock. In the second case the nerve trunks of the brachial plexus were infiltrated with cocaine previous to division. Section of these nerve trunks was not followed by symptoms of shock, the ex-

planation being that the cocaine blocked the afferent impulses which in the first case produced reflex vaso-motor disturbances resulting in a fall of blood pressure.

The same principle of blocking nerve trunks has been used for a long time in producing anesthesia over proposed fields of operation. It is suggested this be called "regional anesthesia," in contradiction to "local anesthesia."

The above principles apply to traumatic injuries to a greater degree even than to pathological cases. In these cases the conditions producing the shock are present and active.

The indications are to rid the patient of the centripetal impulses originating in the injured member by cocainization and division of the nerve trunks and removal of the crushed member. Strychnia and salt infusions in this class of cases, if not actually harmful, are certainly not helpful. It seems justifiable in these cases to advocate, under proper management, ether anesthesia—never chloroform—and early operation in preference to the expectant treatment—waiting for symptoms of shock to disappear. Much may be accomplished by strapping the abdomen to keep up blood pressure and morphia in small doses to control restlessness.

In order to anticipate impending shock, determine its degree, whether increasing or diminishing, and to detect alterations due to various steps in the operation or to therapeutic agents employed, it is necessary to supplement tactile observations on the peripheral arteries by some means of estimating the blood pressure. The form of apparatus described by Rica Rocci furnishes a simple and convenient means. By this instrument the changes in arterial tension expressed in millimeters of mercury may be taken with the shortest possible intervals and charted graphically. By reference to such a chart kept during the operation one has the means of detecting impending shock and is enabled to prevent profound collapse.

Charts illustrating the value of blood-pressure data are given in three groups of cases—abdominal, cerebral, and peripheral.

Experimental observations have shown that a weakened or paralyzed vaso-motor center in the medulla brought about reflexly by mechanical injury to peripheral nerves plays the chief rôle in inaugurating a state of shock. There results from this weakening of the center a determination of the blood to certain vascular fields, the most important of which is the splanchnic area.

Normally the blood pressure is seen to rise under such a condition as stimulation of a peripheral sensory nerve—so-called "pressor" response. This same pressor response is seen clinically, e. g., in biliary colic, trigeminal neuralgia, dilation of sphincter, stretching of the sciatic nerve, etc.

There are, however, certain predisposing factors which favor the reflex loss of this vaso-motor tone, producing a fall in blood pressure—so-called "depressor" effect. Among these are loss

of blood, co-existent primary anemia, exhaustion from extensive operation or prolonged anesthetization, fatigue of vaso-constrictor mechanism consequent on repeated calling out of pressor responses by powerful stimuli, etc.

We do not know the mechanism of this depressor response, but the fact of its occurrence is sufficient for practical requirements. We do know that injuries of the most diverse nature to peripheral nerves produce reflexly a fall in blood pressure, which is the most characteristic feature of shock. Local cocainization of nerve trunks block the centripetal impulses which might otherwise bring about this loss of vascular tone and consequent fall of blood pressure, precipitating a condition of profound shock.

* * *

NEW OPERATIVE PROCEDURE FOR CONVEYING THE PORTAL BLOOD DIRECTLY INTO THE VENA CAVA BY UNITING THE PORTAL VEIN WITH THE VENA CAVA INFERIOR. Iginio Tansini. *Centralblatt für Chirurgie*, No. 36, 1902.

There is at present no known safe and rapid operative method for conveying the blood directly from the portal vein into the vena cava.

Talma's operation is still severely criticised, and the result is obtained only indirectly and incompletely.

The procedure recommended, which is an end-lateral anastomosis of the portal vein with the vena cava, is as follows: The portal vein is dissected free, as is also a small portion of the inferior cava. Two clamps covered with rubber are placed on the vena cava proximal and distal, respectively, to the site of anastomosis. One clamp is placed on the portal vein. The portal vein is then cut across at the hilus of the liver. A small incision into the wall of the vena cava is then made between the clamps. Into the opening in the vena cava the end of the portal vein is sutured.

The clamps are now removed, and one can see the walls of the collapsed vena cava fill out and the blood pass directly from the portal vein into the vena cava; at the same time the blue color of the intestines, caused by the temporary interference with the circulation, is seen to clear up.

In a later modification the opening into the vena cava was made by removing a spindle-shaped piece of the wall. This allowed the end of the portal vein to be fitted in and closed more closely.

The operation as described was carried out on ten dogs. In seven of these the result was perfect. The dogs remained perfectly well up to the time they were killed, one month after the operation. They gained in weight when fed on bones rather than meat.

The later modification of removing a spindle-shaped piece from the wall of the inferior vena cava was used in two additional cases. The dogs remained perfectly healthy two and one-half months after the operation.

REVIEW IN PATHOLOGY.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

THE CULTURE OF THE ORGANISMS OF VACCINIA AND VARIOLA.
Ishigami. *Centralblatt für Bakt.*, June 18, 1902.

The author states his conclusions that none of the bacteria which are found in variolous lymph or in infected glands are causatively related to the disease. In sections of the artificially-produced papules there is to be found, especially in the epithelial cells, a certain protozoon which is both constant and numerous in variola lymph, in vaccine lymph, and humanized lymph, as well as in variola and vaccinia crusts.

This protozoon at times shows ameboid movements, oval in shape, multiplies by fission, and also by the production of cyst forms containing sporozois. The protozoon can be cultivated on special media, and when inoculated into calves, vesicles are formed. Variola and vaccinia are caused by the same parasite. Cultures obtained from variola crusts are capable of rendering an animal immune to inoculations with vaccine lymph. The virus which has been attenuated by passage through the body of the calf does not regain its virulence even when it is returned to the human body.

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AN INQUIRY INTO THE INFLUENCE OF SOIL, FABRICS, AND FLIES
IN THE DISSEMINATION OF ENTERIC INFECTION. Firth and
Horrocks. *British Medical Journal*, September 27, 1902.

This paper was presented in the section of pathology before the British Medical Association, and details numerous experiments with moist and dry soils, experiments with fabrics, and with flies. The conclusions, which are equally applicable to enteric bacilli recently isolated from enteric stools as to old cultures of the organism which have been in the laboratory for many months, are given as follows:

1. That there is no evidence to show that the enteric bacillus, when placed in soil, displays any disposition or ability to either increase in numbers or grow upwards, downwards, or laterally.
2. That the enteric bacillus can be washed through at least eighteen inches of soil by means of water, even when the soil is closely packed down and no fissures or cracks allowed to exist.
3. That the enteric bacillus is able to assume a vegetable existence in ordinary and sewage-polluted soil and survive therein for various periods, amounting in some cases to as much as seventy-four days.
4. That the presence or absence of organic nutritive material in the soil appears to be a largely negligible factor, since the enteric bacillus can survive in a soil indifferently well whether it be an organically polluted soil or a virgin soil, and whether it receive dilute sewage or merely rain water.

5. That an excess or great deficiency of moisture in soils appears to be the dominant factor affecting the chances of survival of the enteric bacillus in, or at least the possibility of recovering it from, soil.

6. That from fine sand allowed to become dry the enteric bacillus can be recovered on the twenty-fifth day after inoculation.

7. That from fine sand kept moist with either rain or dilute sewage the enteric bacillus cannot be recovered later than the twelfth day after fouling. This inability to recover the organism is due probably not so much to its death as to its being washed down into the deeper sand layers by liquids added.

8. That in peat the enteric bacillus appears to rapidly die out, as the microbe cannot be recovered from it after the thirteenth day, but this soil is so porous that it is quite possible that the micro-organism was washed down into the deeper parts, and consequently not recoverable from the place of inoculation.

9. That from ordinary soil kept damp by occasional additions of rain water the enteric bacillus can be recovered up to and on the sixty-seventh day.

10. That from a similar soil kept damp by occasional additions of dilute raw sewage the enteric bacillus is recoverable up to the fifty-third day.

11. That from a similar soil kept damp by occasional additions of dilute sterile sewage the enteric bacillus is recoverable up to the seventy-fourth day.

12. That in a similar soil after heavy rainfall the enteric bacillus at once disappears from the surface layers.

13. That from a similar soil allowed after inoculation to become so dry as to be readily blown about as dust the enteric bacillus can be recovered up to and on the twenty-fifth day, and that enteric infected material can be readily translated from dry soil and sand by means of winds and air currents.

14. That in a sewage-polluted soil recovered from beneath a broken drain the enteric bacillus is able to survive up to the sixty-fifth day.

15. That from a piece of khaki drill inoculated with an emulsion of the enteric bacillus and then allowed to become quite dry the micro-organism is recoverable up to and on the seventy-fourth day.

16. That from a piece of khaki serge similarly treated the enteric bacillus is recoverable up to and on the eighty-seventh day.

17. That from a piece of blue serge similarly treated the enteric bacillus is recoverable on the seventy-eighth day.

18. That from a piece of khaki drill fouled by liquid enteric feces and then allowed to dry the micro-organism is recoverable on the seventeenth day.

19. That from a similar fabric fouled by solid or semi-solid enteric feces and then allowed to dry the micro-organism is recoverable up to the ninth day.

20. That the enteric bacillus is able to survive in surface soil an exposure of 122 hours of direct sunshine, extending over a period of twenty-one consecutive days; that from a piece of infected serge the enteric bacillus is recoverable after the fabric has been exposed to fifty hours of direct sunshine, spread over a period of ten days.

21. That ordinary house flies (*musca domestica*) can convey enteric infective matter from specific excreta or other polluted material to objects on which they may walk, rest, or feed; that such infected matter appears to be attached not only to their heads (mandibles probably), but also to their legs, wings, and bodies. It has not been proved that the enteric bacillus passes through the digestive tract of the fly.

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A BRIEF SUMMARY OF THE CLINICAL, PATHOLOGIC, AND BACTERIOLOGIC FEATURES OF CUTANEOUS BLASTOMYCOSIS (BLASTOMYCETIC DERMATITIS OF GILCHRIST). Frank H. Montgomery. *Journal of the American Medical Association*, June 7, 1902.

The description here given is based chiefly on the clinical, pathologic, and bacteriologic study of fourteen cases. Of these the histo-pathology was studied in thirteen cases and cultures obtained in eleven cases. The disease in its origin and career corresponds to a local infective process having a chronic course. There seems to be no relation of the disease in question with syphilis or tuberculosis. Likewise no relation can be discovered between the disease and the sex, occupation, nativity, or habits of the individual affected. The disorder begins as a papule, which soon becomes covered with a crust. The lesion slowly enlarges peripherally in the form of an indolent, flat wart-like papule, frequently attaining a cauliflower appearance. The border of the area is one of the most characteristic features. It slopes more or less abruptly from the elevated roughened surface to the normal skin, from which it is sharply defined. It is smooth, of a dark-red or purplish color, is from one-eighth to three-eighths of an inch wide, and on close inspection is seen to be set with a large number of very minute abscesses. When carefully punctured with a fine needle these abscesses give exit to a small amount of thick muco-pus. The course of the disease is irregular or essentially chronic.

In histologic structure the lesions bear considerable resemblance to those of verrucous tuberculosis and carcinoma, yet differ distinctly from both. The striking and characteristic changes occur in the rete, which is the seat of extensive hyperplasia, sending down processes deep into the corium, and contain the miliary abscesses which are peculiar to this disorder.

These abscesses vary in size from the most minute to those large enough to be recognized by the unaided eye. They contain leucocytes, nuclear fragments, red-blood corpuscles, the organism peculiar to the disease, and, in most cases, giant cells. The giant cells frequently contain one or more of the parasites. They occur usually in pairs and of unequal size, but also singly and in groups. Distinct budding forms can be found readily. The simplest method of demonstrating the fungus is by placing a little of the teased tissue or pus between a slide and cover glass with a drop of water or equal parts of liquor potassae and glycerine.

The organisms then appear as double-contoured highly refractive bodies, in some of which granular contents, vacuoles, or shining, spore-like bodies can be distinguished. The diameter of the organism varies, as a rule, from seven to twenty microns.

Media inoculated with minute quantities of the pus will show, in the majority of instances, pure cultures of the organism. Among the best media are beer-wort, glycerine, and glucose agar. Most of the organisms grow best in a medium that is slightly acid. The time required for the development of the different organisms in the original cultures varies from two to sixteen days. In gross appearance the cultures may show slightly elevated, white, smooth colonies, a rough, granular surface, which may eventually form prominent folds and depressions, or a light white fluffy growth with short or long aerial hyphae. With very few exceptions, the growth extends more or less into the medium and become closely incorporated with it. Moist preparations from the culture may show budding organisms or mycelium that may be fine, homogenous and branching, more or less segmented, with or without lateral conidia, and which may contain few or many highly refractive bodies, which are probably spores.

In a number of cases animals were inoculated with pure cultures of the organisms, resulting in the production of abscesses or granulatous swellings at the site of inoculation, from which the organism has been again cultivated. Granulomatous nodules have resulted also in the deeper-seated organs, from which the organism has been recovered in pure culture, the animal usually dying from a form of chronic toxemia or marasmus. In the majority of animal inoculations the results have been negative.

In the cases of protozoic dermatitis reported by Rixford and Gilchrist the cutaneous lesions resembled those of blastomycosis, both clinically and histologically, but the organisms proliferated by sporulation only, and not by budding or mycelial growth. Cutaneous blastomycosis and protozoic dermatitis are undoubtedly closely related disorders, if not varieties of the same process. The author's report contains the narration of his thirteen cases, giving the clinical history, the histo-pathologic, and bacteriological findings in each case.

THE PATHOLOGY OF CHRONIC SPECIFIC DYSENTERY OF TROPICAL ORIGIN. Charles F. Craig. *American Medicine*, October 11, 1902.

The report deals with the chronic form of the acute specific dysentery of the tropics—the form corresponding to the acute forms associated with the Shiga-Flexner bacillus, in contradistinction to the amebic dysentery, which is the usual form occurring in the tropical regions. The form described is believed to be the chronic stage of the acute specific dysentery of tropical origin for the following reasons: First, the blood serum of these cases gives an agglutination reaction with a pure culture of the Shiga bacillus; second, a pure culture of the Shiga bacillus has been obtained from the intestines in some of the cases of this form of dysentery.

The observations recorded in this report are based upon autopsy findings in 103 cases. For convenience of description the author has divided them into three classes—follicular (twenty-eight cases), diphtheritic (seventy cases), and gangrenous (five cases)—these being the stages of one process—in fact, all three stages may be present in the same case.

THE CHARACTER OF THE DYSENTERIC STOOLS.

The stools differ in each stage of the process:

(a) Follicular stage: Macroscopically they exhibit the following characteristics: In number they vary from three to twenty in the twenty-four hours; semi-fluid consistency. In patients upon a varied diet the stools present particles of shreds of undigested food. In color they are a light greenish yellow, but may vary to a dark green. Mucus and pus are present, but seldom blood. They are not very offensive. The microscopic examination at this stage generally shows the presence of blood, often but a few corpuscles, and again a considerable amount.

Numerous pus cells were found in the majority of cases, likewise mucus and intestinal epithelium. In the worst cases large portions of intestinal membrane were observed, composed generally of a single layer of epithelial cells. Undigested foods were, as a rule, present.

Bacteria, as well as *cercomonas intestinalis*, and *trichomonas*, were present in large numbers, but in none of the cases were the amebae of dysentery observed.

(b) Diphtheritic stage: The stools are composed of a serous body in which are suspended threads, strings, and pieces of pseudo-membrane, cells, and small portions of intestinal mucous membrane. Blood, pus, and glairy mucus are also present. The color varies from slate to red. These stools resemble very closely those found in amebic dysentery. The typical stool consists of

a brownish, watery, offensive stool, containing bits of pseudo-membrane and portions of mucous coats of the intestine. Microscopic examination showed blood, pus, pseudo-membrane, and portions of the intestinal mucosa. While occasionally portions of the mucous membrane showed a typical structure, usually only structureless pieces of membrane were seen. As in the follicular stage, bacteria and intestinal parasites were present; amebae were never found present.

(c) Gangrenous stage: In this stage the mucous and, sub-mucous coats of the intestine in a state of gangrene, along with pus and blood, are found in the stools. Microscopically pieces of necrosed membrane showing the glandular structure or the necrotic membrane may be observed.

THE GROSS AND MICROSCOPIC PATHOLOGY.

(a) Follicular stage: The intestines were distended with gas; dull-gray color; coats of large intestine thickened, in one case being almost cartilagenous in consistency. One of the most common conditions was the excessive thinness of the jejunum and ileum, in some places the walls being so thin as to resemble parchment, and there was excessive atrophy of the mucous membrane. In ten of the cases the solitary follicles of the small intestine were markedly enlarged. In all but one case the follicular ulceration was confined to the large intestine, ceasing abruptly at the ileo-cecal valve. The ulcerations were characteristic. They were situated at the summit of the follicles, and appeared first as minute ragged openings. As the process advanced the adenoid tissue of the follicle broke down, the ulcer became larger, had undermined edges and a greater diameter at the bottom than at the top. They often appeared with extremely sharp-cut edges, as if punched out. The floor of the ulcers was generally the submucous or muscular coat. The region about the ileo-cecal valve and the rectum were the parts most involved.

The microscopic study showed that the process consists essentially in a necrosis and ulceration of the solitary glands or follicles of the large intestine, with an extension of the process to the mucous and submucous coats and sometimes to the muscular coat; invasion of all the coats by immense swarms of leucocytes and connective tissue cells, leading to atrophy and loss of function of the tissues affected.

(b) Diphtheritic stage: Intestines distended with gas; large intestine of a grayish color. The internal surface of the intestine varied in appearance, depending on the stage the process had arrived before death. Some of the cases showed an involvement of the mucosa without a diphtheritic deposit, but in the majority a deposit was formed over the surface—in some cases the deposit in patches, in others the entire surface of the large

intestine is covered. In all the cases the mucous membrane of the rectum, where it is not covered with exudation, was of a peculiar dusky-red color and of a velvety appearance. All of the cases showing a diphtheritic deposit presented numerous ulcerations, due to the destruction and sloughing of the diseased mucosa and submucosa. In all cases the deposit of diphtheritic membrane was greatest in the rectum and just below the ileocecal valve.

The microscopic study showed essentially a necrosis of the mucosa and submucosa, the necrosed tissue sloughing off and leaving superficial ulcers. In many sections the pseudo-membrane covering the surface of the mucosa was very thick and almost homogeneous in structure. In such cases it often formed a layer nearly as thick as the combined mucosa and submucous coats.

(c) Gangrenous stage: Characterized by almost total destruction of the mucous and submucous coats of the large intestine, these coats having become a mass of gangrenous tissue streaked with greenish pus and from which a horrible odor is given off. In this stage the patient often has general septicemia, metastatic abscesses being found in other organs, especially the lungs. The intestines were usually found matted together; large intestine often necrotic and of a greenish-blue color. Numerous cystic cavities in the muscular coat were observed. The color of the mucous membrane varied from a reddish brown to a dark green. There were numerous large areas in which the mucous membrane was entirely destroyed, as well as the submucous and portions of the muscular coats. There were no distinct ulcers observed in the rectum or cecum, where the gangrenous process was most intense. The microscopic appearance showed merely an advance of large numbers of leucocytes, with a general destruction of all the coats of the large intestine.

BACTERIOLOGY OF CHRONIC SPECIFIC DYSENTERY.

While Craig was able in only three cases to isolate the bacillus described by Shiga in acute dysentery, from the fact that the blood of all his cases gave an agglutinative reaction with the Shiga bacillus, he is inclined to believe that the cases he describes are the chronic form of the dysentery of Shiga. In no case of amebic dysentery could an agglutinative reaction with Shiga's bacillus be obtained. On the other hand, the presence of staphylococci and streptococci in such large numbers must be considered in determining the etiology of the chronic variety.

In conclusion, the author calls attention to the fact that the term "tropical dysentery" as denoting dysentery due to infection with the ameba is unwarranted in the sense that amebic dysentery is the only type occurring in the tropics. All of these cases originated in the tropics, and are as really tropical as amebic dysentery.

Society Reports.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD OCTOBER 6, 1902.

IN the absence of Dr. Osler, the chair was taken by Dr. Hurd.

Aneurism of the Aorta.—Dr. McCrae showed two cases, one a thoracic and the other an abdominal aneurism.

The first was a male thirty-three years old, a plumber and trapeze performer. The patient gives no definite history of syphilis. In 1898 he was struck on the chest by a car, and two weeks later he was again struck in the same place. Two weeks after this he had dyspnea, and felt as if there were a valve in his throat. He was treated in one and another hospital for several months before a diagnosis of aneurism was made. On one occasion, in November, 1899, while acting as orderly in a hospital, he fell while carrying a patient. On his first admission to the hospital, in January, 1900, the diagnosis was made of an aneurism of the right subclavian artery. There was marked pulsation in the right infraclavicular space, and the right clavicle was distinctly raised at each systole. Operation was advised, but was refused by the patient. He was in the hospital some weeks, and was markedly improved by rest and the administration of potassium iodide. After his discharge he was readmitted twice during that year on account of attacks of pain, which were brought on by overexertion in each case. In November, 1901, he came in for the fourth time. His cough was so rasping and there was such a stridor present during respiration that the diagnosis of aneurism was made by several of the resident physicians who were on the floor above when the patient came in. At this time there was dilatation of the whole arch, vocal paralysis, inequality of pulse and pupils, and the fluoroscope showed that the tumor had extended well to the left of its original limits. The pulsation was also plainly visible above the manubrium. At the present time there is a large tumor occupying the site of the manubrium and extending to the left of the sternum. The left clavicle is lifted during systole, not the right, as at his first admission. The noteworthy features in the case are: (1) The fact that overexertion brought on each attack of pain and dyspnea; (2) the traveling character of the aneurism, it having passed from the right subclavian artery to the arch of the aorta, and extended thence well to the left of the transverse portion of the arch; (3) the entire absence of pressure symptoms at present, although these were present earlier during his illness.

The second case was also that of a man thirty-three years old, without a definite history of syphilis. On admission at the end of 1899 there was marked epigastric pulsation, and on deep palpation an expansile tumor could be clearly felt. Operation was decided upon, and in January, 1900, Dr. Finney opened the abdomen and found a large aneurism at the origin of the coeliac

axis. He inserted about nine feet of wire into the aneurism and passed a weak electrolytic current through it for one hour. The patient did well after the operation, and was soon sent out in good condition, there being no longer any expansile character to the tumor. He has recently returned, complaining of abdominal pain and of inability to walk more than a short distance without stopping to rest. This latter condition, known as "intermittent claudication," is usually associated in man with marked arterio sclerosis. The present case supports the view that the condition is dependent upon circulatory rather than nervous disturbance. As is well known, intermittent claudication is most frequently found in horses, where it is dependent in almost every case upon the presence of a verminous aneurism. The hind legs are almost always affected in horses. It is to be noted that the patient has at the present time a full epigastrium, with a wide area of pulsation and an expansile tumor. The features of the case are: (1) The temporary success of the operation; (2) the existence of intermittent claudication, and (3) the existence of abdominal aneurism in so young a man. If a second operation is not thought advisable by Dr. Finney, it seems as if gelatin injections would be the best form of treatment for this patient.

There is little doubt that in both these cases syphilis was the etiological factor.

Splenic Anemia.—Dr. McCrae showed a patient who was first admitted on the surgical side of this hospital in December, 1890. He had a leg ulcer at the time, which was diagnosed as syphilitic, probably incorrectly. In 1901 he was admitted on the medical side, complaining of a large spleen. He gave a history of having had jaundice and fever while in Mexico seventeen years ago. He was told by a doctor in Mexico that his spleen was very large. On admission in 1901 the patient was very anemic, and his skin had a sallow hue. There was local pigmentation, fever and jaundice. He had a large spleen, and his blood-count was as follows: Hemoglobin, 53 per cent.; red-blood corpuscles, 3,500,000; leucocytes, 6000, with a normal differential count. Rest and arsenic brought about a decided change in the patient's condition. At the present time he has another leg ulcer, and is very anemic. His spleen has not diminished in size. The blood is about the same as it was last year, except that a number of nucleated red-blood corpuscles are now present. The features in the case are: (1) The existence of so large a spleen for a period of seventeen years. It is possible that the large size is due to malarial or syphilitic infection, but neither of these seems a likely cause. It is the most chronic case of splenomegaly on record here. (2) The absence of ascites, of hemorrhage, and of marked hepatic symptoms.

Before showing the case Dr. McCrae called attention to the fact that the term "splenic anemia" included a group of cases with two features in common to all—(1) a large spleen, (2) anemia. Some of the cases show, in addition, gastric hemorrhage, and others hepatic cirrhosis. It is to the case with cirrhosis that the name of "*Banti's disease*" is given. In a case such as the present one, the treatment can only be that of the anemia. Excision of the spleen is but rarely indicated.

The Treatment of Aural Exostoses.—Dr. H. O. Reik showed a patient who had noticed a defect in his hearing two years ago. An exostosis was discov-

ered at that time just within the external auditory meatus. It has increased in size quite rapidly, and now nearly closes the meatus.

Exostoses of this type are most frequently seen in divers, and it is to be noted that the patient shown gives a history of being in the water a good deal. The condition usually follows chronic suppuration, which leads to periostitis, and this goes on into inflammation of the bone. In every textbook which has been consulted, with the single exception of the American Textbook of Diseases of the Eye, Ear, Nose and Throat, the advice is given that aural exostoses should not be operated upon except under two conditions, namely: (1) If such growth prevents the escape of secretions; (2) if there be any condition present in the opposite ear such that, without the removal of the exostoses, the patient would become deaf. Many lines of treatment other than operative have been recommended. The first of these was the use of silver nitrate, and there were recommended after this, in succession, dilatation of the canal, boring through the growth, and more recently, electrolysis. All these are known to be painful and lengthy methods. A review of the literature shows that 129 cases have been reported in which operation was tried, and in which there was no otitis media, past or present. Every case was cured or relieved of deafness. In only 2 per cent. was there any post-operative infection, and even in these cases there was eventual recovery. On the other hand, in the reported cases where no operation was done, death followed from mastoiditis, meningitis, or post-operative destruction of the drum membrane. It would seem, therefore, as if surgical treatment should be recommended, and that early. The operation is very simple. If the growth be near the auricle, it can be removed by a few blows of the chisel; if near the tympanum, Knapp's operation may be done. In this operation an incision is made back of the auricle, which is then pulled forward, so that the growth is attacked directly at its base.

Dr. Randolph: Exostoses such as we have seen tonight are in general such slow-growing tumors that I feel as if most of them were better off without operation, unless the special indications which have been mentioned arise. I remember seeing a case in which after operation the whole side of the patient's head swelled up, and recovery was very slow. Such intense reactions often follow operative procedure. In this particular case I should be inclined to follow the progress of the case very carefully before deciding on operation. If operation were indicated, silver nitrate, though slow is of great value. In one of my cases where operation was clearly indicated I bored through the growth with silver nitrate, of course extending the treatment over a considerable period of time, eventually getting a perfect result.

The Importance of a More Radical Operation for Carcinoma Cervicis Uteri as Suggested by Pathological Findings in the Parametrium.—Dr. J. A. Sampson presented a paper embodying the results of his pathological study. He concludes that metastases after operation for cancer of the cervix take place to very minute lymphatic glands in the pelvis, or to the periureteral tissues, so frequently that a much more radical operation than is at present done seems to be indicated in a majority of the cases. Dr. Sampson's paper will be published in full in the November number of the *Johns Hopkins Hospital Bulletin*.

Book Reviews.

THE PHYSIOLOGY OF THE HUMAN BODY AND HYGIENE. By John Turner, Jr., M.D., Prosector in Anatomy and Instructor in Osteology, University of Maryland; Master of Physiology and Hygiene, Boys' Latin School of Baltimore; Surgeon-in-Chief of North Baltimore Dispensary; Chief of the Comparative Anatomy Department and Corresponding Secretary of the Maryland Academy of Sciences, and member of Medical and Chirurgical Faculty of Maryland. Illustrated. For Medical Schools and College Classes generally. Baltimore: The Sun Printing Office. 1902.

There is urgent need of a book which will convince the people of Maryland that medical education in this State, though progressive, is yet in need of reform. Dr. Turner's book precisely fills this gap. Good as the author's intentions are, the influence of his book will surpass them. What could be more convincing than the following quotations' (the italics are the author's):

"According to the same writer" (Matthews) "there are some germs which prefer *suicide* to that of a watery surrounding." (46.)

"Blood is used in the human being or animal because we need some *internal medium*, now that we are made up of numerous amoeba and special cells placed at a distance from each other." (56.)

"There is a corpuscle found sometimes in the urine known as the bean-shaped, and it is caused by the acid reaction." (61.)

"*Phagocytes* are supposed white corpuscles, which eat flesh and digest it. Some of the white cells wander around; they are *lymphocytes*." (63.)

"By placing Mercury in a test tube the Blood Pressure will lift Hg up 6 in. in left ventricle, 4 in. in right ventricle, and $\frac{3}{4}$ in. in auricles." (70.)

"Fainting is heart inhibition. *Inhibition* may be *inhibited* or counteracted by *drinking water* or by *mashing the testicle*." (85.)

"Tobacco is a common and nauseous habit, especially chewing tobacco." (139.)

"Fried small pieces of meat in lard is difficult to digest." (149.)

"Peptones are thoroughly liquid, and can be detected by Biurett's reaction. See Chemistry." (179.)

"The habits of Birds require that levity should be combined with strength in their confirmation." (209.)

"*The Chayne and Stokes* respiration means that the respiration gets slower and slower until it stops." (221.)

"Crowd Poison is a fatty material which is exhaled, and which usually sticks to fancy trimmings, bric-a-brac, etc., in the room." (224.)

"Never breathe the breath of the sick, for they expire considerable quantities of diseased poisonous principals which you may contract." (230.)

"It is said that bathing in the Salt Lake, near Salt Lake City, is not a bathing, but a 'sitting,' as you cannot 'sink' in that marvelously natural creation of the hidden secrets." (247.)

"The ventriloquist seems to 'throw his voice,' and imitate other sounds. He must, therefore, be an excellent mimicry." (289.)

AMERICAN EDITION OF NOTHNAGEL'S ENCYCLOPEDIA: DIPHTHERIA, MEASLES, SCARLET FEVER, AND GERMAN MEASLES. Diphtheria. By Wm. P. Northrup, M.D., of New York. Measles, Scarlet Fever, and German Measles. By Prof. Dr. Th. von Jurgensen, Professor of Medicine in the University of Tubingen. Edited, with additions, by William P. Northrup, M.D., Professor of Pediatrics in the University and Bellevue Medical College, New York. Handsome octavo, 672 pages, illustrated, including 24 full-page plates, three of them in colors. Cloth, \$5 net; half morocco, \$6 net. Philadelphia and London: W. B. Saunders & Co. 1902.

This, the third volume in the English translation of Nothnagel's Encyclopedia, is fully as satisfactory as its predecessors. The editor is Wm. P. Northrup of New York, who is also the author of the first article in the book, that on Diphtheria. The original German monograph on this subject could not be used in the American edition, but its loss is more than made up in the excellent treatise of Dr. Northrup, covering fully all phases of the subject. That part of the article which treats of intubation is, as might have been expected, particularly satisfactory, and the illustrations here are especially fine. Equally good is that part of the monograph which relates to antitoxin.

The exhaustive articles of Th. von Jurgensen on Scarlet Fever and Measles are, however, the chief offering of the publishers in this volume, and these do indeed enrich American readers.

The chapter of introduction is a very interesting discussion of the exanthemata, including their history, origin, clinical differentiation, the complication, association and recurrence of the exanthemata, and a consideration of their prophylaxis.

Then follows the article on Measles, the most exhaustive, probably, ever written. Before one has finished the first page one encounters a name seldom found in the literature of our language, that of Panum—Panum, the unpraised health warden to twenty bleak islands, who learned more about measles in a year (1846) than his fellow-craftsmen could learn in a century. Five or ten-line references to the epidemics of measles and scarlet fever in the Faroe Islands are found in most American and English writings on these diseases, but von Jurgensen makes liberal use of the studies of Panum and of Hoff.

The liveliest sensation which the reviewer has gotten from von Jurgensen's book is a human interest in Panum, the doctor in oilskins. "It is evident," he says, "that the opportunities for observation which I enjoyed were favorable to a rare degree."

Let us send some one to the Faroe Islands to learn about Panum—Osler, for choice. He never would be missed.

In the scarlet-fever article we find nearly ten pages on the relation of scarlet fever to the puerperium. Those who are in inordinate haste, poor fellows, may skip these pages.

The American editor has added much that is of value to both these articles. Indeed, the bracketed text is greater in amount than that contained in both the earlier volumes. A good description of Koplik's spots is given,

with a color-plate illustration. Flindt's original description of the buccal and faucial appearances is given in full by von Jurgensen. The editor supplies what is at present known of the hematology of both measles and scarlet fever. The pages upon treatment, which were in the original rather full, are considerably amplified by the editor.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume II and Volume III, June and September. Philadelphia and New York: Lea Bros. & Co. 1902.

The June volume of this very satisfactory digest contains four articles, the first being upon "Surgery of the Abdomen, Including Hernia," by Wm. B. Coley of New York, a very complete *résumé* of recent advances in this branch of surgery. Particularly interesting is the first portion of this article, treating of penetrating shot wounds of the abdomen.

There is an article on Medicine by Dr. Alfred Stengel, covering, in 115 pages, the latest views on diseases of the blood and ductless glands, the hemorrhagic diseases, and metabolic diseases.

The section on Gynecology is by John G. Clark of Philadelphia, and there is a good article by Edward Jackson of Philadelphia on Ophthalmology.

The first article in the September volume is by Wm. Ewart, M.D., F.R.C.P., of London. It opens with a very complete and satisfactory review of the more recent literature on pneumonia. The most extended review, however, is on the subject of Tuberculosis, and this is particularly full as respects treatment. Nearly half the article is devoted to diseases of the heart and blood-vessels. The best of a great number of contributions to the literature of this subject are abstracted in this article. There are more than 300 references.

The article on Dermatology and Syphilis is by Wm. S. Gottheil of New York, and in this there are a considerable number of excellent illustrations from photographs.

The review in Neurology is by Wm. G. Spiller of Philadelphia, and that upon Obstetrics is by Richard C. Norris of Philadelphia.

The book as a whole furnishes a complete digest of the advances of a year in four departments of medical science.

A BRIEF OF NECROSCOPY AND ITS MEDICO-LEGAL RELATIONS. By Gustav Schmitt, M.D. 3¼x6¼ inches, leather, pp. 186. \$1 net. New York and London: Funk & Wagnalls Company.

This pocket manual will prove of undoubted value to the coroner's physician and to those conducting autopsies with a medico-legal aspect. It is scarcely to be recommended to the student preparing himself for post-mortem examinations. The condition of the body and organs in death due to various poisons, to hanging, lightning, electricity, and other violence form a rather interesting and important chapter.

H.

MARYLAND MEDICAL JOURNAL.

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BALTIMORE, NOVEMBER, 1902

THE TUBERCULOSIS COMMISSION.

THE text of the law under which the Tuberculosis Commission will proceed is here printed in order to acquaint the medical profession with the opportunity here afforded for distinguished services in a public work of the highest importance.

One feature of the bill is novel, and calls for particular comment. All institutions having medical officers, and supported in whole or in part by public funds, are required to make records such as the Commission may direct concerning each case of tuberculosis coming under observation. The ownership and final custody of these records are secured to the institutions, but the Commission has, for its own purposes, control of the form and contents of the records. The number of institutions in this State supported either partly or entirely at public cost is quite large. The hospitals and dispensaries come first to mind, and from them the largest amount of data will undoubtedly come. But, besides the hospitals and dispensaries, there are many schools, reformatories, homes, and asylums whose medical officers will be able to make valuable observations concerning the incidence of tuberculosis upon the particular class of individuals coming under their care.

The details of the record blanks are not yet generally known. They will be brief, however, and will include, besides a small part of the customary clinical record, certain information bearing upon the economic relations of tuberculosis. The Commission will ask, for instance, what effect each case has had upon the earning power of the patient and upon the material comfort of the family. The medical men into whose hands these blanks are put will find them of somewhat novel interest.

Every institution deserving public support will accept with more than cheerfulness the opportunity of contributing to the success of the Commission's most important undertaking. It is possible, of course, to treat the preparation of these records as in some sense a return for the gifts of the State or city, and it is possible for the Commission, if so minded, to operate upon just that theory. The legislature in enacting this law had, perhaps, in mind its right to ask as much of its beneficiaries, but this view has probably not occurred to the Commission.

The collected and recorded data will doubtless be given and received as free-will offerings of the contributors according to their several abilities, but they may also be regarded as expressing the contributor's appreciation of public bounty. Two or three institutions, deriving no support from public funds, and therefore outside the provisions of the act, have signified their desire to be supplied with the special inquiry blanks, and there seems little

doubt that a good volume of valuable information will soon be pouring into the hands of the Commission from all parts of the State.

Before the work of the Commission is ended inquiry of some sort will have been addressed to every practicing physician in Maryland, and the measure of the Commission's success will be directly proportionate to the interest of medical men in the problem of tuberculosis. Such an opportunity to deserve well of the State has seldom been offered to the profession.

AN ACT FOR THE CREATION OF A TUBERCULOSIS COMMISSION.

Chapter 451 of the Acts of 1902.

SECTION 1. Be it enacted by the General Assembly of Maryland, That the governor of the State be, and he is hereby, authorized to appoint a Commission to be known as the "Tuberculosis Commission," to consist of five persons, three of whom shall be physicians, whose duty it shall be to investigate the prevalence, distribution, and causes of human tuberculosis in the State of Maryland, to determine its relations to the public health and welfare, and to devise ways and means for restricting and controlling said disease.

SEC. 2. The members of said Commission shall serve without pay, except expenses actually incurred, and shall continue in office for a term of two years from the date of their appointment. They shall meet in the city of Baltimore within thirty days after the date of their appointment, and thereafter as frequently as may be necessary; they shall fill, by a majority vote, any vacancy that may occur in their membership, and shall report the results of their investigation not later than January 1, 1904.

SEC. 3. All hospitals, dispensaries, and other institutions having medical officers, and supported in whole or in part by public funds of the State of Maryland or of any city or county in this State, shall cause to be made upon blanks furnished by the Tuberculosis Commission records of such facts as may be available for the use and purposes of said Commission concerning every case of tuberculosis coming under the care of such institution. The records so obtained shall be and remain the property of the institution where they are made, provided only that the said Tuberculosis Commission shall have free access to and use of such records during the period for which this act shall remain operative.

SEC. 4. For the purpose of defraying necessary expenses, including printing, rent, postage, and clerical assistance, the sum of \$4000, or so much thereof as may be necessary, is hereby appropriated, to be paid by the treasurer of the State upon warrant of the comptroller at such time and in such sums as may be authorized by the Commission.

HOW WE RID CLEVELAND OF SMALLPOX.

EVERYONE must have heard the remarkable trumpeting of Dr. Martin Friederich, health officer of Cleveland, who announced in February, 1902, that he had driven smallpox from his beautiful city without the aid of vaccination. "The valuable experience we have gained," he says, "should not be lost to posterity." "When we consider all the means employed and measures taken during our struggle with the hydra-headed monster, when

we sum up and try to reach a conclusion, in my opinion, thorough investigation, strict quarantine, and sanitary measures come in-for a great share in our victory, but the deathblow was dealt by formaldehyde." This brilliant flourish exalted the delirium of the antivacs no less than it swelled the bosom of the trumpeter. In response to a hearty encore, a cadenza was executed under the baton of Mr. Bernarr McFadden.

Valuable as this experience should certainly be to posterity, its value is excelled by the later experience of Dr. Friederich and of Cleveland. The facts of the case have been fully brought out by the State Board of Health in the *Ohio Sanitary Bulletin* for August, 1902.

On July 21, 1901, when Dr. Friederich took charge of the hygienic destinies of Cleveland, not a case of smallpox was reported in the city, though one case had been reported on the previous day (July 20), and there were sixteen cases in quarantine. These seventeen cases were the insignificant remainder of the 1223 cases which had occurred since January 1, 1901. In the first two months of Dr. Friederich's administration not one case of smallpox was reported. On October 4, 1901, four cases were reported, and on December 21 one case was reported. One case was reported on January 11, 1902, and another on January 18. His romanza on formaldehyde was then in type. The epidemic which Dr. Friederich obliterated in the first six months of his formaldehyde campaign therefore included a grand total of seven cases.

The lesson of this unique contest was well learned, inasmuch that the Fire Department of Cleveland, under the inspiration of Fakir Tom, was about to send the steamers to the scrap heap, and had contracted to equip the fire laddies with hypodermic syringes. At this juncture the features of the post-epidemic period became obtrusive. In February thirteen cases of smallpox occurred, and by the end of May sixty-seven cases had been reported, of whom fourteen died. In June 142 cases occurred, and before the middle of October the total number of cases reported had risen above 900, and the deaths had passed the 100 mark.

On June 28 he met the State Board of Health of Ohio, and explained his reasons for abandoning vaccination. He also promised to resume vaccination. On July 28 he had found a virus that satisfied him, and had begun to vaccinate. On this date Dr. Friederich promised to make a public statement correcting the false impressions which prevailed concerning the management of smallpox in Cleveland. He neglected to do this until August 8, when the State Board of Health reminded him. Then he sent an unsigned letter, which, while it described in detail his efforts to get the city vaccinated, in no way modified his earlier claim that an epidemic of smallpox had been controlled without vaccination and by means of formaldehyde disinfection. The State Board of Health therefore determined that the facts should be published.

So we find that the epidemic period, corresponding to Dr. Friederich's first six months in office, and covered by his magniloquent article in the *Cleveland Medical Journal*, included seven cases of smallpox, while the post-epidemic outbreak, whose history Dr. Friederich has not yet finished, runs far up into the hundreds. Truly, the more recent history of smallpox in Cleveland should not be lost to posterity.

Medical Items.

THE Tuberculosis Commission met on October 8 and prepared blanks, etc., for the prosecution of its study of the tuberculosis question in Maryland.

REV. W. N. RICHIE of New York city has been found guilty of violating the medical-practice laws and has been fined \$75. Dr. Richie advertised a cure for the drug habit.

DR. HARRY FRIEDENWALD has been elected to succeed his father, the late Dr. Aaron Friedenwald, as professor of diseases of the eye and ear in the College of Physicians and Surgeons.

TYPHOID fever broke out recently among the soldiers of the Twelfth Pennsylvania Regiment in camp at Shenandoah. Thirty cases occurred, though the disease was not present among the civil population.

THE Pasteur Institute of the College of Physicians and Surgeons, Baltimore, has had recently an unusual number of cases of rabies under treatment. There were eighteen cases in the Institute in October.

THE cornerstone of Jackson Memorial Hospital at Salisbury, Md., was laid with imposing ceremonies on October 13. The founder of the hospital is Congressman Wm. H. Jackson, who will spend \$40,000 upon the building.

DR. ABEL MIX PHELPS died on October 6 at the New York Post-Graduate Hospital. Dr. Phelps was one of the best-known orthopedic surgeons in this country, and was professor of orthopedic surgery in the University of the City of New York. He was fifty-one years of age.

THE *Lancet* recently printed the story of an engineer, Samuel Short, who, while lowering twenty-four miners into a coal pit, was seized with apoplexy. He died almost immediately, but not before he stopped his engine, thus securing the safety of the twenty-four men whose lives were in his hands.

IN the Woman's Medical College of Baltimore Dr. Pearce Kinzing has been appointed professor of surgery; Dr. James Bordley, Jr., professor of diseases of the eye and ear; Dr. L. Gibbons Smart, professor of therapeutics and clinical medicine; Dr. S. G. Davis, professor of anatomy, and operative and clinical surgery; Dr. Mary A. Waters, adjunct professor of hygiene.

THE newly-appointed board of school inspectors excluded nearly 1000 children from the schools in the borough of Brooklyn, and have so given rise to great dissatisfaction on the part of parents. The protests have been somewhat loud, and no doubt the good work will suffer for a time. "Fair and softly goes far in a day." One may perhaps defeat all opponents in detail, but to engage them all at once is poor tactics.

A TERRIBLE blow has fallen upon Murri, professor of clinical medicine at Bologna. His son Tullio, a young and brilliant lawyer, is a fugitive from justice, having confessed to his father the murder of his brother-in-law, Count Bonmartini. The Countess Bonmartini, Professor Murri's daughter, is under arrest as an accomplice, and one, if not two, medical men are believed to be implicated. The causes which led to the murder are yet in mystery.

FIFTEEN policemen are to be tried at police headquarters in New York city for attempting "to influence the public." The portraits of these policemen appeared in advertising matter of a quack-medicine concern, accompanied by testimonials to the wonderful benefits derived by the policemen from the remedies. These helmeted pictures have grown rather common of late in the literature of nostrums. New York policemen, we thought, were rather expensive, quite as costly as bishops, but their frequent appearance in the patent-medicine ads. would seem to indicate that they have underbid the rank and file of the clergy.

DR. WM. H. WELCH has returned from England, where he delivered the Huxley lecture at Charing Cross Hospital on October 1. His subject was "Recent Studies of Immunity, with Special Reference to Their Bearing on Pathology." While Dr. Welch was on the ocean homeward bound a New York paper printed an alleged dispatch from London in which it was said that Dr. Welch had announced a serum which would prevent all disease and cure all diseases. Dr. Wyeth of New York was said to have given a most enthusiastic interview on the subject, though the entire foundation of the utterance ascribed to Dr. Wyeth was his remark that if any man could do such a thing, the man was Dr. Welch, a "bespeakment" to which we in Baltimore will take no exception. As for the cablegram, it had no basis in fact, nor in misunderstanding, but was a product of sheer fancy.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$180, will be made on July 14, 1903, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the secretary of the college on or before May 1, 1903. Each essay must be sent without signature, but must be plainly marked with a motto, and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay, or a copy of it, shall remain in possession of the college. Other essays will be returned upon application within three months after the award. The Alvarenga prize for 1902 was not awarded, the committee having decided that no essay of sufficiently high standard was submitted in competition.

THE indictment against Dr. Hodges of Ellcott City was quashed by Judge Burke on October 20. Dr. Hodges was accused of having performed a criminal operation upon a patient. No evidence was taken at the trial, so that Dr. Hodges had not an opportunity to present his case, the facts of which are about as follows: Dr. Hodges was called to see the woman, apparently suffering with a digestive trouble. She had diarrhea and vomiting. He prescribed bismuth and opium. On the following day the woman told him that she had aborted in his absence. She had not previously spoken of her pregnancy, nor did Dr. Hodges suspect the condition. On examination it was found that the secundines were undelivered. Failing to empty the uterus by means of the fingers, Dr. Hodges curetted the woman. She grew worse, and was sent to University Hospital in Baltimore, where she died. On post-mortem examination a puncture of the bowel was found. Dr. Hodges believes that a criminal operation had been performed in Baltimore before he saw the woman, though he did not suspect it while he was in attendance, nor did he discover the puncture of the bowel. Dr. Hodges' reputation is such that his innocence is absolutely unquestioned among his professional associates, and his unfortunate

experience is regarded as but an illustration of the dangers to which physicians are often exposed, and against which they cannot too carefully guard themselves.

THE State Board of Health of Maryland has lately published the following rules concerning burials of those dead of infectious disease:

Rule 1. In every case of death from cholera, bubonic plague, or smallpox, the dead body is to be taken charge of at once by the local health officer and buried or cremated within twenty-four hours. Transportation of such bodies by rail or steamer is absolutely forbidden. Such a body must be prepared for burial with as little disturbance of its immediate surroundings as possible. It shall be wrapped in the bed covering, secured by bandages; shall be placed in a tight coffin; the wrappings shall be saturated with 40 per cent. formaline, or solution of bichloride of mercury in the proportion of 1 to 500, and the coffin closed at once. In the discretion of the local health officer a competent undertaker may be allowed to embalm such a body, provided the body be not removed for that purpose from the spot where death occurred. The vehicle in which such a body has been transported to the place of burial shall be washed with a solution of bichloride of mercury in the strength of 1 to 1000.

Rule 2. In every case of diphtheria, membranous croup, scarlet fever, the body shall be prepared at once for burial by arterial or cavity embalming, or by covering with a layer of absorbent cotton not less than one inch thick, securely bandaged or rolled in a sheet, this covering to be saturated with a solution of 40 per cent. formaline or a solution of bichloride of mercury (1 to 500), and the body at once enclosed in a tight coffin. The head and face need not be thus covered, provided that the scalp and face, and the cavities of the mouth and nose have been disinfected with an approved germicidal solution. The lid of the coffin may have a fixed glass panel over the face to permit inspection, but not such as will permit exposure to the air. It shall be unlawful to open the coffin except upon written consent and in the presence of the local health officer. Only persons of adult age shall act as pallbearers in such cases. Interment shall be made within twenty-four hours from the time of death. Only members of the immediate household and necessary attendants shall be admitted to the house.

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A RÉSUMÉ OF X-RAY WORK, WITH SOME PERSONAL OBSERVATIONS.

By Frances Carey Bayne, M.D., and Henry F. Cassidy, M.D.,

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THE *x-rays* are used in medical and surgical diagnosis by fluoroscopy and radiography, and in an ever-broadening field in therapeutics.

Since the basis of success in surgery depends upon a thorough knowledge of anatomical structure, so in radioscopy success will depend upon recognition of the fluoroscopic normal. The belief obtains very widely in the profession that one simply has to look through the fluoroscope to see, but this is far from the truth. No man can hope to make a diagnosis by fluoroscopy without study and practice, and this is also true of radiography. It takes a specialist to take a picture, and an expert to read correctly conditions portrayed by the negative.

The first surgical conditions Röntgen's discovery was used in were the localization of foreign bodies in the tissues, and the investigation of fractures and dislocations. Knowing the difficulty and uncertainty that attended attempts to localize foreign bodies, and knowing, too, the additional traumatism often inflicted by futile attempts at removal and the added danger of sepsis, one can now but marvel at the delicate precision of fixing their position, the certainty of their removal, and the very much lessened danger of infection from clean wounds, as the result of this modern agency.

Approximate localization, especially in the deeper tissues, depends primarily upon the simple fact that the closer the screen to an object the less is it distorted in size and more clear is the image.

Two simple methods of localization are the following: First, the screen is fixed, and an observation is made as to the absence of exaggeration. The clearness of the shadow is noted. The tube is then moved in the same plane a distance of 30 to 60 cm., and the shadow again noted. If the object be near the screen, the position of the shadows will not be very far apart, and they will be more sharply defined.

In the second method the screen and tube are reversed after the first observation, and the clearness and definition are noted.

Exact methods of localization are somewhat more troublesome. A method by screen is the following:

Noting the object, a mark is made upon the skin with an indelible pencil on the side nearest the observer. A corresponding mark is made on the opposite side of the body directly under the tube. A position at right angles is then chosen, and corresponding marks placed on these new points. Lines are then projected, and the foreign body lies at their crossing.

A simple skiagraphic method of localization is that of McKenzie Davidson. Two wires are placed at right angles to each other upon the photographic plate, film, or paper. The Crooke's tube is then placed with its anode at a measured distance from the plate, and exactly perpendicular to the spot where the wires cross. The tube is fixed in a holder which permits movement in one plane only. One of the wires is parallel to the plane in which the tube slides. The wires are coated with any coloring matter that will mark their crossing upon the body surface. The tube is moved a certain distance to one side, an exposure made, and then moved a corresponding distance on the opposite side, and another exposure given. The result is a negative which shows two images. The plate is marked showing its relation to the surface exposed. With the known distance of the tube from the plate, and the distance of the tube on either side of the fixed point, lines can be projected from the antikathode to the plate. These lines will intersect. From this point a perpendicular let fall upon the plate will measure the depth of the foreign body in the tissues.

Harrison, following the same idea, has devised a localizer which he considers simpler. His focus-tube stand is seven inches wide and eighteen inches long, and the tube is fixed seven inches above the board. The light can be moved to either side, and a point is marked on the extreme edge of the board an inch on each side, directly under its center. The points are joined by a straight wire, and a line is drawn at right angles through the center of the first line. The sensitive plate should be so placed that its center corresponds with this point. A photograph is taken with the tube over each of the lateral points in succession on the same plate. The distances of the images of the foreign body from the sides of the board must be accurately measured. A square of seven inches is drawn on a board, and one side of it is scaled. Two pictures mark the distances of the images of the object from the sides of the board. Two pins are also fastened at opposite corners of the board. Two threads are now fastened to these pins and passed around the pins on the scale. Their intersection will show the position of the object.

FRACTURES AND DISLOCATIONS.

The certainty of diagnosis that Röntgen's discovery affords will cause many chapters of surgery to be rewritten. Most points have

been definitely settled, and conditions that were held in theory are now proved facts. Others apparently simple have been shown to be quite complex. Diagnosis becomes more exact, pathological conditions are plainly shown, and treatment becomes more rational and effective. Painful handling is reduced to a minimum, and the consequent bruising and wounding of tissues that often seriously interfere with repair can be avoided. Obscure cases that formerly necessitated anesthesia are plainly shown, and the need of changing a closed into an open fracture, to remove fragments or interposed tissue, is soon settled.

Not the least use of skiagraphy in this connection is the preservation of the printed record of the injury, the most valuable part of the objective history of the case. This can be used in the future treatment, or as proof in medico-legal cases of the exact status of affairs during recognition, treatment, repair, and restoration of function. It would be well to draw attention here to the fact that the *x*-ray has shown that exact apposition of fragments should not be looked for, this condition being exceptional, and not the rule. Usefulness, and not esthetic repair or appearance, is the criterion of successful treatment. This is a point well worthy of remembrance in medico-legal cases, and it accentuates the necessity of skiagraphic interpretation by experts alone. One can predict positively that those mysterious "railway spines" and conditions of like nature will disappear under the searchlight that Röntgen has put into our hands. Damage suits against manufacturers, casualty and railroad companies must have a surer basis in many particulars before the legal profession will father such cases.

As the bones approach nearer the surface of the body, and are not shadowed by others, so will the resultant pictures be clearer. That the skull, spine, pelvis, and hip joint offer difficulty to the rays is due to this fact—that even the soft tissues, when in mass, can and do make shadows, like the superimposing of fine tissue paper, one sheet upon another, until light cannot pass through.

In fractures, as in all other *x*-ray work, more than one observation should be made. The injury should be scanned from several directions. A moment's reflection will convince one that a line of fracture incomplete or confined to one side of a bone could be missed. It would be well to point out in detail certain facts that should always be kept in mind:

That the *x*-rays are diffused in all directions, being projected from a single point; so that, lacking the parallelism of the sun's rays, exaggeration and distortion necessarily follow. Again, the screen and skiagraph do not represent true pictures of the object, but do represent the true picture of the shadows of objects. Skiagrams are not made like photographs from the actinic rays reflected from the surfaces of things, but are silhouettes of the bodies before the tube. Inasmuch as denser substances offer greater resistance to the penetration of *x*-rays, and give clearer shadows, this explains the difficulty of the work amid the abdominal viscera and other tissues, where the density is about the same grade.

As wide as is the use of the *x*-rays in medicine, we may confidently look forward to the time when further evolution of the tube and greater capabilities of apparatus will afford us varying qualities of this agent and a widening of its field of usefulness.

RADIOSCOPY.

On examination of the trunk we find that part above the diaphragm lighter than that below it. Dividing the chest vertically is a broad dark band, made by the spine and breast bone, on each side of which the lungs appear as the brighter part of the image. The heart is seen pulsating, especially the ventricles, which are more opaque than other portions of that viscus. On the right, under favorable conditions, may be seen the right auricle; on the left side, the pulmonary arteries. A small portion of the arch of the aorta may be made out about the first intercostal space.

The normal lungs appear brighter during inspiration, and a thin chest-wall gives greater clearness to the picture than a thick muscular one. The lower boundaries of the thorax are well differentiated by the dark outline of the diaphragm, whose movements are plainly seen. The average excursion of this muscle between expiration and full inspiration is 6.8 cm. on the right and 7.1 cm. on the left. The length and depth of the thorax influences this excursion, being greater in long chests.

Pulmonary tuberculosis, emphysema, new growths, atelectasis, gangrene, and abscess all give definite appearances in fluoroscopy.

It will be well to speak here of the status of *x*-ray examination of the thorax. It must not be supposed that this method has supplanted the ordinary methods of diagnosis. On the contrary, it has made them more valuable, since sight, which is no doubt our surest sense, supplements touch and hearing.

The earlier the recognition of tuberculosis the greater is the promise of cure. If by any agency it be possible to recognize a condition of the lung that precedes even a local congestion or the presence of tubercle bacilli, we have advanced a long step forward in the prevention of that disease. Brehmer revived and defended with vigor the observation of that skilled pathologist, Rokitsansky, that the phthisical habitus is associated with emphysema and a small heart. Williams of Boston was the first to mark the concomitance of emphysema and loss of excursion power of the diaphragm, and Williams, Abrams, Stubbett, and Crone have shown the intimate relation of these two pathological factors preceding the lodgment in the lung of tubercle bacilli.

Consolidated areas in the lung appear darker than normal in fluoroscopy, owing to the greater density, and the diaphragmatic movements are restricted on the affected side. In addition, as a contrast, the ribs are clearly outlined against the healthy lung. One can appreciate how fluoroscopy will be of paramount value in the diagnosis of central pneumonias, where auscultation and percussion have failed to recognize the condition.

Atelectasis, gangrene, and abscess are recognized by the same shadowing of the screen. Emphysema, on the other hand, produces undue brightness under the rays.

Hydrothorax, empyema, and pneumothorax can be made out by the Röntgen ray. Between hydrothorax and empyema no difference is made out under the screen, since their densities differ but slightly. The appearances would be the following: (1) A shadow varied by position; (2) obscurity of the outline of the diaphragm adjacent to the field, and a corresponding restriction of that muscle in movement. Again, depending on the amount and situation, a displacement of the heart would take place. In pneumothorax the shadow of the midriff is pushed down to a lower level, and restricted in its motion. The affected side is necessarily brighter, and the heart shadow may or may not be displaced according to the amount of air pressure.

The outlines of the heart can best be seen during deep inspiration, for the reason that the diaphragm is in descent, and a larger portion of the cardiac outline is brought into view, and the lungs are more transparent to the rays. The pulsations of the heart are best seen during expiration. The impulse seen and felt on the chest-wall is not always the apex-beat of the heart, for the radioscope shows that this may be the result of a ventricular blow. Indeed, many of our fixed notions as to size, location, action, and diseases of the heart must be recast under the clearer knowledge that the Röntgen rays afford us of this organ. This method of examination is much more accurate than percussion. The outlines can be clearly seen, and permanent tracings on any translucent material interposed between the chest-wall and the screen can be made.

Irregular pulsations of the heart can be followed, and incomplete pulsations, not appreciated at the wrist, can be seen. In cases of aortic and mitral insufficiency the excursion of the left border of the heart between systole and diastole is much greater than under normal conditions, and the length of the heart's border, which is seen to move, is longer. So that, after marking out the outline of the heart on the chest-wall, the radioscope, coupled with auscultation, affords the clinician surer evidence as to site of murmurs. The increased cardiac outline under the fluoroscope may be due either to enlargement or pericardial effusion. If to effusion, the pulsating left border of the heart is obscured, and the shadow is rounded. Change of posture will produce variation in the shadow.

Thoracic aneurisms are more surely diagnosed by radioscopy than by any other method. Many such cases have been reported that gave no evidence of their presence. Their appearances vary greatly, and depend on size and position. Of the descending arch of the aorta the shadow falls to the left of the sternum, above and posterior to the heart; of the ascending arch the shadow is cast to the right and close up to the sternum. Pulsation, so important to the recognition of aneurism, can at once be seen to be in the tumor.

The abdomen offers a more difficult field to these methods, because the densities of the organs differ less than one would sup-

pose. Still, the introduction of gas, or of substances opaque to the Röntgen ray, furnish aids in the elucidation of problems in this region. In the diagnosis of urinary calculi especially the Röntgen rays have proven serviceable, but of this we will speak later. Fluid in the peritoneal cavity can easily be made out by change of position of the patient, producing a change of shadow on the screen.

On account of depth of tissue and the bony outer case, practical progress in the use of the Röntgen ray in the pelvis has been slow. What is needed here is a tube giving at the same time great penetration and great contrast, which is practically impossible. By reason of uterine, fetal, and intestinal movements, and the distance from the photographic plate, skiagraphy has apparently no advantages in the study of pregnancy.

THERAPEUSIS.

The x-ray has a great field of usefulness in the treatment of epithelioma, sarcoma, lupus, eczema, birth-marks, nevi, favus, sycosis, tinea, hypertrichosis, leprosy, elephantiasis, pruritus, scrofulous glands, and chronic ulcers. That some reported cures will prove permanent cannot yet be safely promised. Merrill and Johnson of Washington have reported healed epitheliomata showing no signs of return after two years' observation.

X-RAY DERMATITIS.

This condition resembles very closely ordinary caloric injuries, with this exception, that it is not produced on the instant, like burns, but manifests itself insidiously hours, days, weeks, or months later. It is a neurotrophic effect, and depends especially upon length of exposure, with nearness of tube. A low vacuum and personal idiosyncrasy play a less important part in their production. The frequency of such happenings has been much exaggerated, as has also their degree. Codman, up to March, 1902, had collected less than 200 cases from an estimated exposure to 1,000,000 operations. More than two-thirds of these injuries occurred in the first two years of radiology. One-third happened in the persons of specialists, and only 50 per cent. were of moment. Probably in the past year there was not one such accident in 10,000 sittings.

It has been our privilege to have seen the apparatus and methods of the most prominent operators in Philadelphia, New York, and Boston, working with some, looking on at the work of others, profiting by all.

Of Charles Lester Leonard, who has done the most extensive and most successful work in the detection of urinary calculi by this agency, we can speak at first hand, for we served an apprenticeship with him this summer past. Leonard reports 206 cases of suspected stone that were sent to him for examination, with an error in diagnosis of between 1 and 2 per cent. With certain appearances in his negatives, he speaks with positiveness as to the absence of stone, its presence, of course, speaking for itself on his plate. Leonard makes repeated exposures, until he succeeds in producing

contrasts between the soft tissues about the kidney. That attained, he affirms or denies the presence of calculi. He uses a Leed's seven-inch portable coil, adapted by a motor-generator to the street main. The interrupter is the ordinary mechanical make-and-break. For the determination of stone he uses the Queen automatic regulating vacuum tube and Cramer double-film plates, made especially for *x*-ray work.

Mihran K. Kassabian, at the Medico-Chirurgical Hospital, devotes his whole time to this branch of medicine. His *forte* is in skiagraphy, having been a professional photographer before taking up medicine. His special knowledge makes his plates things of beautiful contrasts. His proudest possession is a negative depicting a cysto-purulent kidney. Kassabian uses a Queen outfit complete, a 15-inch coil, a self-regulating tube, and mechanical interrupter.

Perhaps the most up-to-date work upon the brain done in this country is from the hands of J. E. Pfahler of Blockley. He has a series of beautiful negatives showing details and contrasts of cerebrum and cerebellum, meninges, and bone. He diagnoses tumors, abscesses, and softenings with ease. As far as known, he has made the only negative of the cord and meninges the world over. In this work Pfahler uses a 15-inch Leed's coil, mechanical interrupter, Queen tube.

William M. Sweet, ophthalmologist at Jefferson, demonstrated for our benefit the use of his localizer. It is by this ingenious instrument that Sweet has achieved his marked success in detecting foreign bodies in the eye and orbit with such exact precision. Like Leonard with calculi, he speaks positively upon the presence or absence of these annoying particles. Sweet uses a 15-inch Queen coil and outfit, with mechanical make-and-break.

W. J. Morton of New York does not do skiagraphy, but devotes himself wholly to the therapeutic uses of the Röntgen rays. Unlike the majority, he boldly advocates the thorough exposure of surrounding tissue, and uses no protecting screens. Morton is one of the few who report upon internal cancer treated by *x*-ray. He declares it has relieved the pain, nausea, and indigestion of cancer of the stomach, and caused a diminution in the size of the growth. His case is still under treatment, and we shall hear more of it. His apparatus is a Willyoung, 18-inch coil, using a physico-chemical interrupter.

Carl Beck of New York has done some excellent work upon the tissue changes that take place under the influence of the Crooke's tube. He likens *x*-ray injuries to caloric burns, and believes the rays show a stimulating and alterative effect upon tissues of low structure, whilst retrograde and destructive changes take place in the higher structures of the skin, as the nails, sweat-glands, and hair follicles.

More extensive *x*-ray work is done in Boston than any city in the East. At the Massachusetts General Hospital Dispensary White and Brown of Harvard treat from fifty to seventy cases of skin dis-

eases a day with the Röntgen light. One could well believe that all the inoperable epitheliomata that other men had sent away to die had been resurrected to partake in the blessings that this treatment affords them.

Francis H. Williams' treatise on the *x*-ray stands a classic in its line. This book has made him known the country over. His work has been broad, and not confined to one aspect of this subject, like that of so many others. He uses both the static machine and coil, and his apparatus ranks among the most powerful in the United States. The coil is a 20-inch A. W. L. Heinze make, physico-chemical interrupter. The plates of the influence machine measure six feet across.

E. A. Codman, Massachusetts General Hospital, and Robert Os-good both take first rank in bonework with this new agency. Codman has collected all the reported diseases of *x*-ray injury in a brochure, and treats them with a good deal of scientific analysis. Both use the A. W. L. coil. From the variety of coils and tubes and interrupters and static machines and the excellent output of first-class work, it is clearly seen that apparatus is not the only thing. Professional training, technical and clinical knowledge are all-important, and actual practical work is a *sine qua non* to success.

IS THE TENDENCY TO CONTRACT CONTAGIOUS OR INFECTIOUS DISEASES GREATER IN THE PRISONER THAN IN THE FREEMAN?

By Theodore Cooke, Jr., M.D.,
Baltimore.

READ BEFORE THE CONGRESS OF PENOLOGY, PHILADELPHIA, 1902.

WHEN we note the changes that have occurred in medical science in the past half-century we wonder what we, as physicians, would have done with the limited means of our forefathers. In no branch of medicine are these changes more marked than in that which protect the community against disease. Recognizing what an important matter prevention of disease must be to those in control of prison work, this paper will endeavor to present the speaker's ideas and suggestions as to how we can guard against disease in our prisons.

We may call the present era in medicine the bacteriological epoch. Gradually we are satisfying ourselves that all diseases are originating from some bacteriological source. These known or unknown germs are constantly menacing the body, being present in our food, and in the air, water, and earth. Nature has erected bulwarks which we know as skin, mucous membrane, lymphatic

glands, and leucocytes to protect the body against these enemies. If the individual is in perfect health, these bulwarks are healthy also, and can resist the invasion of disease, but if the individual's condition is not perfect, the weak point is exposed to attack by whatever disease may be present and able to assault that point.

This crude presentation of cause and effect I desire to use in discussing the tendency the prisoner has of contracting contagious or infectious diseases. To determine whether the prisoner or the freeman has the greater tendency to contract these diseases we must first consider the relative conditions of the prisoner and of the freeman—first as to the previous history of each, then as regards the physical and physiological changes wrought in the prisoner after incarceration, and, finally, is the prisoner as much exposed to contagious or infectious diseases as is the freeman.

We find that even in the time before they had become two distinct classes the difference between the prisoner and the freeman is rather marked. Starting from childhood, they may, or may not, have had the same advantages, the same surroundings, but gradually they have drifted apart. The one who is going to continue as a freeman pursues a course of application, energy, sobriety, and moral purpose; the other throws off restraints, and gives way to the demoralizing influence of immoral purpose. Those who take the latter course of necessity lose that naturally strong physical and mental constitution which nature has provided them, thereby weakening the bulwarks against disease.

Examining the records of the physical condition of the men at the time of their reception at the Maryland Penitentiary, we find that over 10 per cent. have syphilis, either acquired or inherited; we find that over 10 per cent. have tuberculosis in some form or other; we find the mental condition of over 25 per cent. below the standard, due either to inherent taints, neglect, or self-abuse; we find that 80 per cent. acknowledge the habitual use of alcoholic stimulants. These statistics give us a slight idea as how nature, when weakened by excesses, is liable to be overpowered by the ever-present germs of disease.

Our conclusion, then, must be that the one who is going to retain his liberty has a greater power of resisting disease, while the one who pursues the opposite course falls an easy victim to any disease that may be present.

Becoming a prisoner, the individual is restrained from his demoralizing tendencies, and is compelled to lead a different life. His hours are regular; his diet simple, yet wholesome, with total abstinence from alcoholic stimulants; he has the best medical and spiritual attention; he has healthy employment; he is kept under strict discipline; his correspondence and reading are carefully looked after, and he is shown the peril of vicious habits. Under

such favorable conditions these unfortunates, many of whom have not had a kind word spoken to them since childhood, partly regain that strength of constitution which had been lost before imprisonment, thereby partly regaining the power of resisting disease.

Of course, the loss of freedom, of outdoor exercise, and of friends and relatives are factors that tend to diminish this resisting power, especially in those who led upright lives until they committed the offense which resulted in the loss of liberty. By the loss of freedom and of friends and relatives the psychological condition is impaired.

On the one hand, then, the previous history of the individual before he becomes a prisoner tends to decrease the power of resisting disease, as also, after imprisonment begins, do the loss of liberty, of outside exercise, and of friends and relatives. On the other hand, the prisoner's regular life, correction of bad traits in character and habits, etc., tend to rehabilitate this resistant power. Still, his previous life has left its mark on him, and he has not the resistant power of the man who has led a correct life.

It is the endeavor of the prison authorities to correct both the physical and the moral deformities. Those suffering from contagious or infectious diseases are separated from the healthy prisoners, and it is the duty of the authorities to use all diligence in keeping the bodies of their prisoners away from anything that may produce disease.

In the construction of the Maryland Penitentiary the practice of cleanliness is predominant. There are no places for the accumulation of dirt. The cells are well lighted, and constructed so that they can be thoroughly cleansed at regular intervals. Each department is supplied with running water, and the prisoners are encouraged to bathe daily, besides being compelled to take shower baths at short intervals.

We have found that prisoners are vulnerable to all manner of disease, and any relaxation of vigilance on the part of the authorities may lead to serious results.

For example, on the advent of the present administration we found that mumps had visited the Maryland Penitentiary every spring, laying up from 50 to 100 men. Examining the records carefully, it was found that invariably the trouble had started in the stone shop. The stone shop was thoroughly renovated. The next spring mumps appeared in the same shop. The materials brought into the stone shop were examined. It was found that the rags supplied by the contractor to rub stone were gathered off the streets. The authorities ordered that all rags should be thoroughly boiled before they were brought to the prison. For the past eight years we have been entirely free from mumps.

This gives us a slight idea how liable the prisoner is to infection. Outside the stone-rubber uses the same rags. They are not boiled for him. Yet the free stone-rubber does not contract mumps at his work. The danger of overlooking sources of infection is very great in those institutions where the industries are various and the implements are many.

However diligent we may be, at times contagious or infectious disease appears in our prison. Erysipelas is too common in penal institutions. It is brought in from outside in infected material. By constant alertness we keep the number of cases very small, the least irritation of the skin being subjected to the most rigid examination.

Tuberculosis, a disease recognized today as capable of being carried from one individual to another, is the nightmare of all prison physicians, especially in those institutions where the negroes predominate. Every acute disease is liable to eventuate in some form of tubercular trouble. We cannot refuse to accept tubercular patients, as most of the hospitals do. We isolate such prisoners, and destroy their sputa.

Prisoners are also liable to the invasion and spread of typhoid fever. We carefully guard our water supply, and the typhoid stools are sterilized, thereby not only protecting the institution, but the outside community.

Vaccination is compulsory, every prisoner being thoroughly protected against smallpox.

We are constantly on the alert for trachoma, every case being isolated and treated. The same precautions are applied to syphilis.

I will not lengthen the list of diseases we are constantly guarding against, the foregoing being the most prominent. Our chance of success in preventing infection is greater in the prison than in the free community, as the prisoner is absolutely under control.

Having found that the previous history of the prisoner tends to decrease the power of resisting disease, as also do the loss of liberty, of outside exercise, and of friends and relatives, and having seen that the prisoner's regular life and prison discipline tend to rehabilitate this resisting power, and having found that means are employed to exclude infectious diseases from the prisons, we conclude that the danger of contracting infectious disease is not as great in the prisoner as it is in the freeman.

While the prisoner, if left unprotected like the freeman, would fall easy victim to infectious disease, protected as he is from contact with the world his liability to attack is not as great as it is in the freeman.

Current Literature.

REVIEW IN PEDIATRICS.

Under the Supervision of José L. Hirsh, M.D., Baltimore.

RELATION OF THE THYMUS GLAND TO MARASMUS. William R. Stokes, John Ruhrah, and C. W. G. Rohrer. *American Journal Medical Sciences*, November, 1902.

From a study of the post-mortem findings of eighteen cases of marasmus and comparison with the same in two normal infants and three cases of secondary atrophy the authors conclude that:

1. Atrophy of the thymus gland is always found in cases of infantile atrophy.
2. The condition of the thymus gland is the index of the general nutrition of infants.
3. The state of nutrition of infants may be estimated by a microscopic examination of the thymus gland at autopsy.

After a rapid review of the work of other authors, particularly of Friedleben and Mettenheimer, both of whom have noted the existence of a relation between the state of nutrition and the thymus gland in infancy, the authors detail their own findings.

The normal thymus gland of an average infant weighs from 10 to 15 grammes. In cases of secondary atrophy and marasmus the weight at times is reduced to $1\frac{1}{2}$ to 2 grammes. In all cases of atrophy in infants there is loss of weight in the thymus. The normal gland has trabeculae separating the lobules. The medulla is easily distinguished from the cortex.

In cases of moderate atrophy, the medulla and cortex lose their identity, while in the severe cases of marasmus the gland structure of the thymus is largely crowded out by an increase in the connective tissue of the gland. The trabeculae become very much thickened, as does also the capsule of the gland. Hassel's bodies are often, in this condition, enlarged and the seat of hyaline degeneration.

The internal administration of the dried thymus glands was tried in a number of cases of marasmus, but without any effect. The number of experiments in this direction were, however, too small to admit of any definite conclusions on that part of their work.

It is strange that the thymus changes in marasmus have not heretofore been studied in this country. Thymus atrophy is the most prominent pathological change that is noted in these cases, and yet its mention is not made in text-books.

CHRONIC PARENCHYMATOUS NEPHRITIS IN A CHILD TREATED BY
RENAL DECAPSULATION. Augustus Caille. *Archives of Pe-
diatrics*, October, 1902.

A five-year-old girl had measles of a mild type at the age of two years. One month later her face, abdomen, and legs were noticed to be swollen. The diagnosis of acute nephritis was made, and from this she apparently recovered. A second and third attack followed in quick succession, showing all clinical evidence of chronic nephritis—scanty urine, containing albumen, all forms of casts, blood, and pus. The heart began gradually to enlarge, the apex beat being in the sixth interspace, to the left of nipple line; second aortic sound was accentuated.

Renal decapsulation was now performed on both kidneys. Both kidneys were found in a state of chronic parenchymatous nephritis. The healing process was uneventful. The child began to improve soon after the operation. There was a gain in body weight, disappearance of edema, marked diminution in albumen, and an increase in urea (3.3 per cent.). Three months later the patient continued to show improvement.

Renal decapsulation is performed with the object of creating new and liberal supply of arterial blood to the diseased kidneys. Both the denuded kidney and its fatty capsule are normally richly supplied with blood vessels. By the operation both are brought together over the whole extent of the kidney, so that new vascular connections are formed. The fibrous capsule forms a barrier to the passage of blood vessels between the kidney and its fatty capsule.

The author advises decapsulation in forms of acute nephritis which do not tend to clear up, in order to prevent it from becoming chronic.

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THE SERUM TREATMENT OF SCARLET FEVER. Paul Moser.
Wiener klin. Wochenschrift, October 9, 1902.

Moser inoculated horses with increasing doses of living streptococci which were obtained from the heart's blood of children who had died of scarlet fever. The streptococci were grown in bouillon. After the horses were thoroughly immunized a serum was obtained which was used in the treatment of severe cases of scarlet fever. The amount used varied from 30 to 180 c. c., the larger dose being found preferable. The author calls attention to the fact that his hospital (St. Anne Hospital, Vienna) receives the more severe cases of scarlet fever, and, notwithstanding this fact, his mortality under serum treatment was reduced to 8.99 per cent., while the other hospitals during the same period, under ordinary treatment, showed a mortality of 13.09 per cent.

After injection of large doses of the serum a marked improvement was noted in the majority of cases. The exanthem did not come to full development, the temperature and pulse showed a decided improvement. The nervous and gastro-intestinal symptoms disappeared within twenty-four hours, and tendency to cardiac weakness was not so apt to occur. As to the complications, Moser could not speak with positive assurance, though he is inclined to believe that nephritis and otitis media were not so frequent as usual. The majority of cases showed a shorter duration of the disease. Small doses, about 10 c. c., were used as a prophylactic treatment in a small number of cases, but nothing definite was established along this line. The injections proved absolutely harmless in all cases, and in this respect acted very similarly to antidiphtheritic serum.

In his experiments Moser found streptococci in the heart's blood in sixty-three out of ninety-nine cases of children who had died of scarlet fever. The streptococci differ from those usually found elsewhere, and Moser concludes that the negative experiments with Marmorek's antistreptococcus serum are probably due to this fact.

The author is continuing his researches under a grant from the Austrian government, and we look for further communications on this interesting and important subject.

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TYPHOID FEVER IN CHILDREN OF TWO AND ONE-HALF YEARS OLD AND UNDER. Griffith and Ostheimer. *American Journal Medical Sciences*, November, 1902.

The paper is in answer to the self-propounded question: "Do we find typhoid fever in infancy, which by evident symptoms or by blood reaction is proved to be such, and if so, how often does it happen?" The authors answer the first of these questions in the affirmative, and from a series of tables show that the disease is not as rare as is generally supposed. Not, however, that typhoid fever is at all so common as in later childhood or in adult life. Its *relative* infrequency under the age of three years remains undisputed.

Table I includes a *résumé* of eighteen personal cases, all having the symptoms of typhoid, some showing a Widal reaction, and two cases verified by autopsy.

Table II contains a series of twenty-three cases of congenital typhoid collected from the literature, although six of them seem as probably not cases of typhoid fever. In seventeen cases the mothers had typhoid fever, and two cases occurred during house epidemics in which others besides the mothers were affected. Recovery ensued in three cases, death in nineteen; in one the result is not stated. A positive Widal reaction is mentioned in three cases. This group does not include fetal typhoid, some cases of which have been reported.

Table III gives a series of six cases of apparently healthy infants giving a positive Widal reaction—infants born of mothers suffering from typhoid fever. In such cases it is possible that the subjects have had typhoid fever in utero, or that the agglutinating principle may have passed from the diseased mother into the healthy child through the placenta or, possibly, later through the milk.

Table IV tabulates a series of 139 cases, not congenital, but occurring in the first year of life. Recovery is noted in twenty-eight, death in seventy-seven, and the result is not mentioned in thirty-four.

Table V includes 187 cases occurring in the second year of life, fourteen of which may, however, be regarded as doubtful. A positive Widal was recorded in fourteen cases. In one case the reaction was negative during life, though typhoid bacilli were cultivated post-mortem.

The final table (VI) records sixty-eight cases up to the age of two and one-half years. Recovery was noted in thirty-six, deaths in fourteen, while the result in eighteen cases was not mentioned. Of the fourteen fatal cases typhoid bacilli were found in three cases only.

The summary of the cases of typhoid in children up to two and one-half years, subtracting the doubtful cases, leaves about 325 reported cases. Out of ninety-eight autopsies typhoid bacilli were found in fourteen cases. This is quite a contrast to the statement made by Northrup that in 2000 autopsies on children the lesions of typhoid fever were never encountered.

The authors conclude that were all the mild cases of the disease recognized, and even the more severe ones reported, the disease would seem to be not so uncommon in early life as is supposed.

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KERNIG'S SIGN: ITS FREQUENCY OF OCCURRENCE, CAUSATION, AND CLINICAL SIGNIFICANCE. Robert D. Rudolph. *American Medicine*, November 8, 1902.

According to some writers, Kernig considered his sign as pathognomonic of meningitis, and while most authors endorse his views, some even go further, and say that it is diagnostic of the cerebro-spinal form of the disease.

Rudolph insists that if the sign consists (as Kernig has described it) in inability to extend the knee passively and fully while the thigh is at right angles to the body, then Kernig's sign is present in a large proportion of persons who have not meningitis—in fact, he found such an inability present in 60 per cent. of all hospital patients examined—chiefly children suffering from diseases of divers kinds. On the other hand, this sign is not present in healthy children leading active lives.

The sign will be found present in any condition in which the hamstring muscles are in a state of hypertonus. The author found that

recumbency is one of the most potent factors in bringing out the sign. A simple method for eliciting this sign is first to extend the knee fully, then flex the thigh on the pelvis and measure the angle at the hip; normally an angle of 90 per cent. should be present.

Kernig's sign is not a special symptom apart from rigidity of the muscles of the body elsewhere, but is the same condition of rigidity shown in the hamstring muscles which we find in the neck, back, abdomen, and upper limbs. Some writers have used the term "Kernig's sign" as applying to this rigidity of the upper limbs.

The sign in meningitis is probably due to irritation of the cerebellum, either by the toxins set up by the meningitis or an extension of the inflammation to the cerebellar substance. In those cases of meningitis in which the sign is not present the site of the disease is probably away from the region of the cerebellum. On the other hand, in those in which, after a period of rigidity, flaccidity sets in, probably the cerebellum, having been at first irritated, is then paralyzed by the process, and hence we get the same result as when the cerebellum is experimentally destroyed, i. e., a loss of skeletal tone.

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THE DISAPPEARANCE OF THE PATELLAR REFLEX AS A NEW SIGN
OF CROUPOUS PNEUMONIA IN CHILDREN. M. Pfaundler.
Munch. Med. Wochenschrift, No. 29, 1902.

In the last seven years the author observed 200 cases of genuine croupous pneumonia. In fifty-five (27.5 per cent.) the patellar reflex was noted to be absent or markedly diminished. Closer observations to determine the relation between the loss of reflex to the stage of the disease showed some interesting conclusions:

At the time of entrance into the hospital the temperature was usually high. In some cases, however, the patellar reflex was absent also in children who did not have fever, and not infrequently the knee-jerk was absent after the crisis. A relationship between the localization of the pneumonia and the knee-jerk could not be made out, but in general very severe cases with cerebral symptoms were particularly prone to show the absence of the knee-jerk. Well-built and well-nourished children usually show this sign. The sign usually showed itself on the second or third day of the disease. In several cases it was noted before any physical signs in the lung could be made out. After convalescence the patellar reflex reappeared.

It appeared of interest to learn whether in other forms of pneumonia the absence of the patellar reflex would be as often noted. In eighty-seven cases of lobular pneumonia the reflex was absent only twice, while in the remaining cases it was always normal. The author concludes that the absence of the patellar reflex in croupous pneumonia is rather characteristic of the disease, and in certain cases may be of great importance in differential diagnosis.

SURGERY.

*Under the Supervision of Hugh H. Young, M.D., Baltimore,
Assisted by H. A. Fowler, M.D.*

ETIOLOGY OF POST-OPERATIVE FEMORAL THROMBO-PHLEBITIS.
John G. Clark. *University of Pennsylvania Medical Bulletin*,
July, 1902.

From a careful analysis of forty-one cases of femoral thrombo-phlebitis the following conclusion is drawn: Post-operative thrombo-phlebitis is not of infectious origin; neither is it due to traumatism of the perineal, pelvic (uterine and ovarian), or iliac vessels (common, internal, external), but is the direct continuance of a propagating thrombus arising in the deep epigastric veins which grows slowly downward until the femoral or iliac vein is reached, and then gives rise to a mural or partially-obstructing femoral thrombus.

The analysis shows that the left leg was affected in twenty-five cases, in eleven cases the right leg, and in five cases both legs. In four cases the operation was confined to the right side, while the thrombosis occurred on the left side. The earliest symptom of thrombosis following operation was on the eighth day; the latest on the thirtieth day. This complication occurred only thirty-five times in 3000 cases of abdominal section. Femoral phlebitis is never found even in extensive perineal operations except when these are in conjunction with abdominal section.

Attempts to substantiate this theory by experiments on rabbits gave no satisfactory results on account of (1) infection in spite of careful aseptic precautions, (2) collateral venous circulation, and inability to produce thrombi of any magnitude in the epigastric veins of the rabbit.

The following points are brought forward to substantiate the theory: (1) The occurrence in cases where traumatism due to retraction affects directly the epigastric veins; (2) relatively large number of cases in operation for suspension of the uterus where the ligature catches or makes traction on the epigastric veins; (3) anatomical relation of epigastric to iliac and femoral veins; (4) interval between operation and onset of the first symptoms—usually from eight to fifteen days.

The following case brings clinical evidence to support this theory: A woman, thirty-two years old, developed right-sided femoral thrombosis after suspensio uteri, suspensio ovarii, and appendectomy. Three months later a second laparotomy was necessary for hydrosalpinx and acute peri-oöphoritis; the abdominal wall was then palpated, revealing at once cordlike thrombosed deep epigastric veins. At the entrance of the deep epigastric into the external iliac veins a bunch of varicose veins as large as a leadpencil were found. Both epigastric veins were tense and hard, and had been involved in the adhesions incident to the suspensio uteri, and were

either included in the suspensory ligature or injured by traction produced by this ligature.

* * *

THE DIFFERENTIAL DIAGNOSIS OF ACUTE POLYARTICULAR RHEUMATISM, FROM A SURGICAL STANDPOINT. Walter G. Stern.
New York Medical Journal, July 5, 1902.

The majority of investigators of the present day accept the theory that acute polyarticular rheumatism is an infectious disease. With this etiology in mind it is easy to understand how a difficulty may arise in the diagnosis between acute polyarticular rheumatism and the infections which have their site of activity in or about the joints. Bacteriology does not always help us, for in the exudate of undoubted cases of rheumatism pneumococci, streptococci, or staphylococci have been found.

The clinical symptoms which speak strongly for acute polyarticular rheumatism are intense and sudden anemia, muffled heart sounds or fresh murmurs, involvement of the smaller joints, moderate leucocytosis, angina, the early appearance of effusions strictly confined within the joint capsule, and, lastly, the positive reaction to the administration of some form of salicylic acid. Certain features of acute polyarticular rheumatism may lead to difficulty in diagnosis:

- (1) Only one joint may be affected.
- (2) It may be of such a mild type, and the effusion so scant at first, as to be difficult to demonstrate later, however, presenting all the grave symptoms of a severe case.
- (3) The swelling may not always be confined to the joint capsule.

The diseases which can simulate acute polyarticular rheumatism, and from which a differential diagnosis must most often be made, are divided into two groups:

- (1) Primary forms of arthritis, such as:

- A. Acute pseudo-rheumatic tuberculous arthritis.
- B. Synovitis serosa.
- C. Synovitis purulenta and arthritis purulenta.
- D. Intermittent hydrops.
- E. Syphilitic arthritis.
- F. Arthritis deformans.

- (2) Arthritis secondary to infectious diseases, such as:

- G. Gonorrheal arthritis.
- H. Arthritis after scarlet fever, pneumonia, diphtheria, etc.
- I. Arthritis in septicopyemia.
- J. Acute osteomyelitis.
- K. Osteochondritis, syphilitic and rhachitic.
- L. Arthritis in pulmonary tuberculosis.
- M. Gout.
- N. Joint neuralgia or neuroses.

Pseudo-rheumatic acute tuberculous arthritis is one of the most important and one of the most puzzling of this entire group of dis-

eases. It may be essentially acute in all its stages, the fever is high, and there may be an anemia present. Sweats are generally noticed at night. The administration of salicylic acid is without effect. The form and appearance of the joint is quite characteristic of tumor albus. The reasons for suspecting the tuberculous nature of this infection are the early fixation of the joint, the fact that salicylates are valueless, and the characteristic appearance of tumor albus.

Synovitis serosa offers difficulty only when multiple, the joints lack the signs of acute inflammation, and the great swelling is out of proportion to other signs.

In empyema of the joint the whole extremity becomes edematous early, and is very characteristic. Aspiration of the joint reveals pus. There is marked leucocytosis.

Intermittent hydrops is not accompanied with fever.

In syphilitic arthritis there is but little accumulation of fluid within the joint, and there is no redness or tenderness. Other positive signs of syphilis and the history helps greatly with the diagnosis.

Arthritis deformans presents no difficulty in diagnosis from acute polyarticular rheumatism if we remember the deposits around the joints which lead to total or partly ankylosis. There is also great muscular atrophy combined with increased muscular reflexes.

In gonorrheal rheumatism the only positive sign is *fixation in extension*. The presence of a gonorrheal infection and the finding of gonococci in the joint fluid makes the diagnosis positive. Arthritis secondary to scarlet fever, typhoid, and pneumonia is usually monoarticular, and presents no difficulty if a good history can be obtained.

Acute osteomyelitis cannot be easily diagnosed from acute polyarticular rheumatism. In many cases during the first few days of the disease the mental symptoms are often the same as in rheumatism. In cases where pus is formed early in the disease the diagnosis can be made from the predominance of the local symptoms. There is infection and edema of the soft parts, with the appearance of fluctuation in the joints, early in the disease. A safe rule is that arthritis of one joint in a child lasting more than ten days, and not influenced by salicylates, is either acute tuberculosis or osteomyelitis.

Cases of so-called "growing pains and growing fever" in children have been analyzed by Tillmanns, and declared to be either polyarticular rheumatism or rickets.

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A METHOD OF CIRCUMCISION. Walter C. Klotz. *New York Medical Journal*, October 4, 1902.

This new method of circumcision consists in removing a cuff-shaped flap of skin, leaving intact the areolar tissue. It is performed under cocaine anesthesia.

The procedure is as follows: The foreskin is retracted, and a

circular incision is made from two to three inches behind the coronal sulcus, this distance depending upon the amount of skin to be removed. The incision extends through the skin only. A second incision is now made around the penis one-half inch behind the coronal sulcus more obliquely than the first and parallel with the corona. These two incisions are now joined by a longitudinal incision along the dorsum of the penis. The cuff-shaped flap of skin thus marked out is dissected off with a knife or blunt shears, care being taken to remove only the skin, leaving the subjacent areola tissue intact. The wound is then sutured by a row of interrupted fine silk or catgut. The advantages claimed for this operation are:

(1) It allows one to determine exactly the amount of prepuce to be removed.

(2) There is absence of any considerable hemorrhage.

(3) Freedom from edema and induration.

(4) No adhesions form along the line of sutures.

This operation is not applicable to very young patients. In paraphimosis the steps of the operation are reversed; the longitudinal incision first divides the constricting bands. In irreducible phimosis it is necessary to do a dorsal incision first, after which the operation may be completed in the usual way.

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REMOVAL OF NORMAL APPENDIX IN ABDOMINAL OPERATIONS FOR OTHER CAUSES. Dr. H. A. Kelly. *Journal of American Medical Association*, October 25, 1902.

In order to answer the question proposed the author wrote to eighty well-known surgeons in different parts of the United States asking for an affirmative or negative answer to the following categorical questions:

(1) When the abdomen is opened for other causes, and the perfectly normal appendix is easily accessible, is it your rule to remove it?

(2) When the appendix is slightly adherent to neighboring structures, as peritoneum, ovarian, or fibroid tumors, do you then remove it?

The seventy-four answers to these questions make it evident that no uniformity of opinion exists as to the propriety of removing an entirely normal appendix. In answering the first question twenty-six surgeons answered "yes," while forty-four answered "no." To the second question sixty answered "yes," while seven answered "no." This wide divergence of opinion is only another evidence that our knowledge of the appendix must undergo further evolution before any unanimity exists among surgeons as to its surgical treatment. It would seem that the weight of opinion is against the removal of a normal appendix, even when easily accessible, during an abdominal operation for other causes. There is a greater unanimity of opinion with respect to the treatment of a slightly adherent appendix. Under similar conditions the author agrees with

the majority in both cases, and gives the following reasons for not removing a normal appendix:

- (1) Its removal involves a slight additional risk.
- (2) Statistics have not yet shown that there is a definite *per mille* risk, either of death or serious disease, in retaining the organ.
- (3) The fact that the appendix has no known function does not prove that it is a functionless organ, so that an improved knowledge concerning it may in the future demonstrate some reason for its preservation.

In operations in the neighborhood of the cecum, particularly in women, the appendix may give rise to post-operative adhesions, particularly if it hangs free from the cecum and is long enough to reach the field of operation. Therefore, in all right-sided pelvic operations, long, free appendices are removed. In conclusion, the following points are emphasized:

- (1) The appendix should always be examined and its condition noted, provided no additional risk is involved.
- (2) The opinion of the majority of surgeons in this country is against the removal of a perfectly healthy appendix.
- (3) The opinion of a large majority of surgeons is in favor of removing an appendix which is even slightly adherent to other structures.
- (4) The fact that the appendix is normal in appearance does not prove that it contains no fecal concretions. Their presence is sufficient reason for the removal of an apparently healthy appendix.
- (5) After removal of the right ovary the stump should always be covered with peritoneum in order to prevent adhesion to the appendix. A long and free appendix should invariably be removed.

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A NEW METHOD OF PYLOROPLASTY. J. M. T. Finney, M.D. *Johns Hopkins Hospital Bulletin*, July, 1902.

For the relief of benign stricture of the pylorus several methods have been advocated, but none of them possessing the merit of being applicable to all cases. Digital or instrumental divulsion of the pylorus, whether by the method of Loretta or Hahn, has proved very unsatisfactory, and has been practically abandoned.

Gastroenterostomy seems at the present time to be the operation of choice with the majority of surgeons. But as to the relative merits of this operation there still exists among surgeons a great diversity of opinion. Explain it as one may, the "Circulus viciosus" of the Germans is present in a considerable percentage of cases, and is a great menace to the success of the operation.

The Heineke-Mikulicz operation, while having definite advantages in selected cases, still has certain recognized objections. The special objections that have been urged against this operation are:

- (1) Its inapplicability in cases of extensive and firm adhesions about the pylorus.

- (2) Its inapplicability in the presence of still active ulceration.
- (3) The liability to recurrence of the stricture due to contraction of the scar.

(4) The inability to obtain good apposition on account of rigidity of the walls of the stomach and duodenum.

- (5) The outlet of the stomach is not placed at the most dependent portion; hence in the presence of motor insufficiency the aid of gravity in emptying the stomach is lost.

The following operation is proposed to overcome these objections. The procedure is as follows:

Divide the adhesions binding the pylorus to the neighboring structures, and also free as thoroughly as possible the pyloric end of the stomach and the first portion of the duodenum. The success of this operation depends upon the thoroughness with which this first step is carried out. A suture, used as a retractor, is taken in the upper wall of the pylorus, and traction is then made upwards. A second suture is then taken in the anterior wall of the stomach, and a third in the wall of the duodenum at equidistant points from the first suture. These two sutures mark the lower end of the gastric and duodenal incisions, respectively.

The peritoneal surfaces of the duodenum and stomach along its greatest curvature are then sutured together. Continuous suture is recommended. An anterior row of mattress sutures is then taken and left long. These mattress sutures, after they have been passed, are retracted vertically in either direction. A horseshoe-shaped incision is then made, beginning at the lowest point of the line of sutures on the stomach side, and is carried up and through the pylorus and around into the duodenum down to the corresponding point on the duodenal side. As much as possible of the scar tissue upon either side of the incision should be excised. The redundant edges of the mucous membrane should be trimmed off to prevent the formation of a valve-like fold of the mucous membrane at the new pylorus. A continuous catgut suture is now taken through all the coats of the intestine on the posterior side of the incision. The anterior sutures are then straightened out and tied. A few Lembert stitches may be taken to reinforce the mattress sutures. This completes the operation.

From a study of the other methods suggested for the relief of benign stricture of the pylorus, and from experience with the above method, the following conclusions seem justified:

- (1) All the operations heretofore suggested for the relief of benign stricture of pylorus are open to serious individual objections.

(2) The operative procedure made use of in the cases here reported combines more good points and less objectionable features than any other method that has been suggested up to the present time.

REVIEW IN NEUROLOGY.

Under the Supervision of Robert Reuling, M.D., Baltimore.

HYSTERIA SIMULATING HIP-JOINT DISEASE WITH SPINAL SCOLIOSIS. Wertheim Salomonson. *Zeitsch. für Nervenheilkunde*, Vol. XIX, No. 1.

There can be no doubt that hysterical scoliosis is an extremely rare condition, and as the cases reported by the author appear to be such typical examples, they will prove of interest. The ten illustrations that accompany the article are especially instructive, as they show the extreme resemblance between this hysterical contracture and spinal curvature and that associated with true hip-joint disease. In a dissertation on this subject Germant in 1897 was able to collect but seven cases from the literature, besides a case reported by himself. The author's first case gave about the following history:

Case 1. Y., aged twenty-four, single, a laborer, fell on August, 1896, in the bin of a grain elevator, falling a distance of sixteen meters. His fall was partially broken by several cross-beams. He was considerably dazed for several seconds, but not unconscious. He walked to the ambulance that conveyed him to the hospital. There was some injury of the shoulder and hip, but no evidence of a fracture. He left the hospital on the following day. He was up and about, frequently accomplishing his usual vocation for nine weeks. After this time elapsed he again applied for admission to the hospital, and was treated with electricity, suspension, and a plaster bandage. In January of 1897 he still complained, and went to the neurological polyclinic for treatment.

He then complained of difficulty in walking and of becoming bent in the back. With the aid of a cane he can walk but a short distance. His limb feels stiff, and has a feeling of stiffness in the back and entire right side. After standing some time the right shoulder sinks more and more. When at rest or lying down he is free of pain. His family history is as follows: His mother is an especially nervous person. His father is a hard drinker. One sister has hysterical attacks, and at times has complete loss of speech. From his thirteenth year the patient had frequent attacks which he describes as feeling a lump ascending from his stomach to the throat. After this he would have marked spasmodic contractures in both arms and legs, and his eyes were turned. He was treated in hospital at thirteen, but the attacks only disappeared gradually, and he has been free of them since his seventeenth year. He has had the usual diseases of childhood, but no very serious illness.

His memory is good, learns quickly, but is very impatient, and always refused to learn a trade. His character altogether is disa-

greeable. The examination reveals a rather poorly-nourished man, but with well-developed muscles; several tattoo markings. When at rest he stands on his right foot, with both hands resting on a cane. The upper portions of his body incline markedly towards the right side, with a striking droop of the right shoulder. The gait is peculiar, and there is a considerable deviation from the normal, for on stepping on the left foot his body is raised higher than when on the right. The right lower extremity is brought forward in such a stiff manner that there is no appreciable bend to the knee. The entire spinal column is inclined, with convexity to the left. This curvature begins in the upper lumbar region, and extends to the lower cervical region. When lying down the movements of the left lower extremity are entirely normal; those of the right are not altogether so. On passive motion a slight resistance is evident in right hip, knee, and ankle joints. Nevertheless, the limb can be put in any position. The knee can be well extended and flexed at will or on passive movements. Abduction of the affected limb is, however, impossible. The patient experiences no pain whatever during these manipulations. Brodie's sign is therefore absent. Patellar reflexes slightly exaggerated; all other reflexes normal. No disturbance in sensation elicited, but there is a well-marked dermatographia. The field of vision shows considerable constriction—30° towards the temporal side, 20° towards the nasal, upwards 20°, downwards 25°. The color test shows that the limit for blue is somewhat greater than for red.

On light percussion a moderate degree of spinal tenderness is found. Electrical examination shows nothing abnormal. Electricity was used as a therapeutic measure several times, but without result. Improvement came in a very unexpected manner nine days after the patient was first treated. On this day the patient had been rather too free with spirits, and on leaving the barroom his stick fell from his hand down several steps into the street, when he jumped down two steps and felt "something give way" in his hip. He ran to recover his cane, and immediately noted the improvement, walked unaided to the hospital, and announced his cure.

The second case reported by the author was in a girl of seventeen years, but it will not be reviewed here, and the cases he has reviewed in detail from the literature are also omitted.

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CLAUDICATION INTERMITTENT (CHARCOT) AS A SYMPTOM OF ARTERIO-SCLEROSIS. Yarl Hagelstam. *Deutsch. Zeitsch. für Nervenheilk.*, Vol. XX, Nos. 1-2.

The author reports seven cases in which the above condition existed in more or less pronounced degrees. The article contains a very instructive review of the literature on this subject, and as this

condition has perhaps not received the attention of clinicians in general, the reader should consult the original article to derive the full benefits of Hagelstam's observations. As the author says, Charcot in 1858 was the first to report a case, and he gave the condition the name of *Claudication intermittente*. The condition is one in which a temporary lameness sets in after a certain amount of exercise. A lower extremity is the one almost always affected—as a rule, only one limb. The author refers to an observation of Erb, who saw the same condition affecting an arm. This lameness may appear after extremely slight exertion. In one of his cases a man of sixty years complained of being able to walk only from "one corner of the street to the other," when he would experience a painful tired feeling, affecting both legs generally, accompanied by a sensation of painful cramps in the calf muscles. After a short rest he was able to continue, when the same trouble would soon return. The onset of this condition has been gradual—about four years. During this time other symptoms pointing to circulatory disturbances are evident in this case. The patient has been annoyed with very cold feet even in moderately cool weather. All these symptoms are more marked in the left extremity. He has noted a progressive shortness of breath on slight exertion, and occasional attacks of vertigo, and attacks of pain in the cardiac region, radiating to the left shoulder.

That the author should associate these symptoms in this case with arterial degeneration is very natural, and he also believes the intermittent lameness is caused by an insufficient amount of blood reaching the muscles, so that they are unable to perform their functions. In almost all the cases where a careful examination was possible some disease of the vessels was found. In Charcot's case there was complete obliteration of the iliac arteries.

Bouley and Goubrex describe an identical condition in horses. Erb in his excellent article on the subject suggests the name "dysbasia intermittens angio-sclerotica."

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THE ETIOLOGICAL FACTORS OF THE SYMPTOMS SUGGESTIVE OF
MENINGITIS IN TYPHOID FEVER. H. Stursberg. *Deutsch.
Zeitsch. für Nervenheilkunde*, Vol. XIX, Nos. 5-6.

As the author points out, the correct interpretation of the symptoms simulating meningitis in typhoid fever is a subject which is still under discussion, and one which presents many difficulties, as the causative factors may be several, and the conditions under which they act may be equally varied. He mentions, as an example, the action of toxins with a normal intradural pressure, and the action of toxins with increased pressure and with intrameningeal exudations. The fact that the typhoid bacillus may have a local action by its presence in the tissue of the nervous system must also

be considered. From the articles which appeared recently it would seem that an increase in the intradural pressure plays an important part in the production of certain nervous manifestations in typhoid fever. Stadelmann suggests that in pneumonia, scarlet fever, typhoid fever, etc., through the action of toxins in the general circulation the fluid in the subarachnoid space is increased and the pressure raised. Recently Boden and Salomon have published the results obtained by lumbar puncture in cases of typhoid showing moderate brain symptoms. In almost all the cases the puncture showed an increased pressure. Loeb also suggests the importance of the intradural pressure in the production of nervous symptoms. In the case reported by the author the intradural pressure was found to be decreased notwithstanding there were pronounced brain symptoms. The patient, a girl of twenty-two, had, during an attack of typhoid, clonic spasms, absence of the corneal and pupillary reflexes, nystagmus, and a peculiar variance in the size of the pupils. Later she had Cheyne-Stokes' respiration, marked rigidity of neck, right-sided ptosis, hyperesthesia of the skin, and rigidity of abdominal muscles. Lumbar puncture gave only 4 c. c. clear fluid; eight days later 5 c. c. clear fluid. Death, with severe mental symptoms, followed on the thirty-ninth day of her illness. The macroscopical examination of the brain showed nothing abnormal; the pia near the base showed some cloudiness. The microscopical examination, however, showed that what were at first thought to be post-mortem clots in the large vein in the central sulcus were thrombi, showing marked evidence of organization. Laterally, these thrombi were found in the veins of Sylvian fissure and the veins over the median side of the hemisphere. A similar condition is seen in the veins of the central gyrus. The author referred the brain sections to Professor Jores, who estimated the age of the thrombi at five to eight days. There was no cellular infiltration whatever in sections of the cortex. The author is not willing to place too much importance on the causative relation between the thrombus formation and the nervous symptoms, but refers to the very possible connection. It would certainly appear that a marked disturbance in the circulation in the brain would best account for the symptoms in this case, and the fact that the symptoms varied so from day to day, such as the sudden onset of ptosis, the peculiar difference in the size of the pupils, etc., would all point to a disturbance in the circulation of the central nervous system.

Society Reports.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

SECTION ON CLINICAL MEDICINE AND SURGERY.

THE eleventh regular meeting was held on November 7, 1902, at 8.30 P. M., Dr. I. E. Atkinson being in the chair.

Case of Congenital Malformation.—*Dr. L. E. Neale* showed a child, born thirty-six hours previously in the University of Maryland Hospital. The mother was a primipara, and had a normal labor, although probably two or three weeks before term. The malformation is so unique that it seemed well to bring the child before the Society while it was still alive. Below the navel there is a separation of the two halves of the anterior abdominal wall, and through this opening there is seen projecting the entire rectum, a mass about 10 cm. long, with the anal opening free in the air. Meconium can be expressed from this opening, and vermicular movements are present. Below and beside the umbilical aperture are two other masses, probably projecting bowel. Below these is the bladder, inside out, weeping urine all the time, and near it what are evidently openings into the genital tract. The urethra is plainly visible. In addition, therefore, to the presence of omphalocele there is a reversal in the arrangements of the parts, the rectum being in front of the bladder and genitalia. Dr. Martin has seen the child, and refuses to operate at present. If the child lives, a plastic operation may be undertaken later. There is no anal aperture at all in the usual site. Following the classification of Hirst and Piersol in their "Human Monstrosities," the case must evidently be placed in the group "Celosma," and is probably one of the species "Aspalosoma." There is present a lack of development affecting the somatopleure layer of the blastodermic membrane, or, in ordinary language, a failure of the two layers of the mesoderm to unite.

Dr. Ruhräh showed a pathological specimen taken from a child three and one-half years old, which, during life, had been an absolute idiot, neither talking nor walking. The child died of pneumonia and meningitis. It had been sick one week. During life it was supposed to have been a male, having a penis and scrotum and testicles, which could be plainly felt in the inguinal canal. At the autopsy there were found, in addition to the male organs described, a perfect uterus, tubes, ovaries, and what was evidently a rudimentary vagina.

The observation of this case reminded Dr. Ruhräh of a case which he saw several years ago, the history of which he had with him. The patient was a male, with a marked degree of hypospadias, so that he looked like a hermaphrodite. Below the small penis was a sac which could be used for a vagina. There were fully-developed breasts, and the patient said that he felt sometimes like a girl and sometimes like a boy.

Exhibition of Pathological Specimens.—*Dr. W. R. Stokes:* The first specimen is a liver obtained from the autopsy of an eclampsia case. The

patient was delivered in the Maryland Lying-in Hospital. Three days after birth she was seized with convulsions, and died within twenty-four hours.

The lesions in the liver are similar to those described by Schmorl. On the cut surface may be seen dark red, apparently hemorrhagic, areas. There are similar areas over the surface of the organ. Schmorl thought that decidua cells passed into the circulation and formed emboli, which located generally in the liver. He now believes, however, that the vessels in the portal system are thrombosed, owing to the action of the circulating toxin. He has found the typical lesion in fifty out of seventy cases of eclampsia. Microscopically, there is typical necrosis of liver-cells. There is some hemorrhage, but the apparently hemorrhagic areas are really areas of necrosis. The cause of the lesion is not bacterial, although in this case we were able to isolate colon bacilli from the liver.

The Relation of the Thymus Gland to Marasmus.—Dr. W. R. Stokes: I wish to show a series of photomicrographs, taken by Dr. J. S. Fulton, illustrating this relationship.

In twenty-five cases of marasmus we found uniformly a condition of atrophy in the thymus. In the normal gland the lobules are separated by thin bands of connective tissue, but in marasmus this connective tissue is greatly increased, and the lobules undergo great atrophy, with much hyaline degeneration. In the normal involution of the gland there is simply a fatty change, and the organ becomes functionless. In extreme cases of marasmus one sees great masses of connective tissue, containing here and there a few areas of hyaline degeneration. This is in striking contrast to the lymphatic character of the normal gland, where almost no connective tissue can be seen. (A full report will be found in the November number of the *American Journal of the Medical Sciences*.)

Dr. O'Donovan: Have any of these cases died of laryngismus stridulus?

Dr. Ruhräh: No.

Dr. L. E. Neale: I am very much interested in the liver which Dr. Stokes has shown, especially as I had the pleasure in 1894 of translating Dr. Schmorl's epoch-making work of eclampsia. At present clinicians and pathologists tend to believe that eclampsia is due to a toxin secreted during pregnancy. Some think the intrauterine fetus is responsible for this toxin, and this view is supported by the fact that the surest cure is the emptying of the uterus. A case like this of Dr. Stokes does not entirely refute this theory, for it is supposed that in some cases so much toxin is accumulated that it may act even after birth. Further, eclampsia has occurred in the child after birth, and lesions have been found in it like those in the mother.

A Sublingual Cyst in an Infant.—Dr. Amberg: This affection is most frequent in Southern Italy, very few cases having been reported elsewhere.

The present case is that of an American baby, seven months old, who was brought to the dispensary of the Johns Hopkins Hospital because of a tumor below the tongue. Four other children of the family are entirely well, and the patient himself is a healthy baby, in spite of the excessive diet which he has received. No glands are palpable. The growth measures 1x1.5 cm., and rises 5 mm. above the surface. It is flat, and its surface is quite rough. The color is bluish-white, and the center of the growth is depressed. It is said to have started when the lower incisors made their appearance, and to

have bled at intervals. It bled freely when silver nitrate was applied to the depression. The case was referred to Dr. Iglehart, who easily removed the growth.

Pandolfi, in 1875, was the first to describe this condition. Later on, Riga, after whom the disease is named, thought that it caused wasting. Some have described the growth as a papilloma, others as a granuloma, and still others as a fibroma. Hypertrophy of the epithelium is a marked feature, and we are therefore inclined to call it a fibroma. The clinical picture is something like that of a tumor described by Calari and Philipson. Some have thought the condition infectious, and others have thought it hereditary.

A Case of Multiple Stricture in the Upper Part of the Jejunum.—Dr. Harrison: The case is that of a male, thirty-six years old, married, a painter by trade. He had pneumonia when eighteen, and syphilis at nineteen, for which he was treated for five years. He has twice had lead colic, and gonorrhea several times. He uses whiskey moderately. Nine months ago the patient began to have pains in the stomach, and vomited after eating. There was tenderness and soreness in the upper abdomen. He entered the City Hospital June 27, 1902, when he was much emaciated, and had edema of the extremities. On the medical side the diagnosis was made of abdominal neurasthenia and cirrhosis of the liver. He gradually grew weaker, the movements of his bowels were very scanty, and the vomitus was quite yellow. Peristaltic waves were seen passing from left to right. No evidences of complete obstruction were observed.

On July 21 an exploratory incision was made with the diagnosis in mind of possible gastric ulcer or tuberculous peritonitis. The patient's temperature was below 98°, and his pulse was 100. Before operation it was noted that the epigastrium was boggy. The stomach was found to be small and pale; the liver very small, pale and flabby; the gall-bladder was not distended, nor did it contain any stones; the duodenum was congested and distended. Below the stomach and omentum was found a loop of jejunum, divided by three milk-white constrictions into masses that looked like bologna sausages. The upper two constrictions had a lumen of the diameter of a pencil; the lower had a lumen of a diameter of half an inch. The first constriction was three inches from the lower end of the duodenum, the second three inches below that, and the third eight inches further on. The intestine at this point was filled with fluid, and although the constrictions were not absolutely impermeable, fluid was only passed under high pressure. There were no distended coils below. The choice of operations lay between an end-to-end anastomosis, after removal of twenty-four inches of bowel, and lateral anastomosis, with partial physiological exclusion. The latter was chosen.

The patient left the table with a temperature of 96.5° and a pulse of 124. There were no setbacks for ten days, but at this time a soft-boiled egg caused some vomiting. The wound healed per primum. The bowels moved on the second day regularly ever after. The pulse and temperature were normal until the fourteenth day, when they began to rise slightly. On the eighteenth day the temperature was 101.4°, there being at the same time some diarrhea. On the twenty-ninth day the temperature was again normal. Forty days after the operation the patient was greatly increased in strength, and on the sixtieth day left the hospital quite well.

Multiple annular constrictions high up in the small intestine are probably always due to healed tuberculosis. Some have thought syphilis a cause, but no such case has ever been detailed. Cicatricial contractions are common in the ileo-cecal valve, but are rare in the jejunum. Matas reported a case where the strictures were three feet lower down in the bowel.

The literature on the subject is given in full in Senn's "Practical Surgery," Henmeyer's "Diseases of the Intestines," and in an article by Matas in the *Philadelphia Medical Journal* for July 9, 1898.

Dr. Campbell: The patient had a tuberculous process at the apex of his right lung. Examination of his stomach contents showed the presence of considerable HCl. The case resembles one of Dr. Tiffany's, the patient being an Italian woman who vomited after eating, and had a great deal of pain in her side. At the operation there were found adhesions between the spleen and the stomach, causing stricture of the duodenum.

Dr. Atkinson: In the October *Medical Journal* for 1896 Robinson shows that in stricture of the intestine there is mapping out of the coils during the time of greatest peristalsis. In a case which I saw at the Johns Hopkins Hospital the colon could be seen distinctly mapped out until the peristalsis overcame the stricture and forced the contents of the bowel past it.

Dr. O'Donovan: I should like to ask two questions: First, why lateral anastomosis was chosen. In two cases which I saw operated upon a V-shaped portion of the mesentery was removed with the bowel, and an end-to-end anastomosis was done. Both patients died. Second, why Dr. Harrison is so sure as to the etiology. In the two cases which I saw there was certainly no tuberculosis. In one of them there had been a long-continued dysentery, which was finally recovered from.

Dr. Harrison said, in conclusion, that the picture was different when the obstruction was lower down, there being no mapping out of the intestinal coils when the strictures were as high up as in the present case. Lateral anastomosis, he said, caused less shock than an end-to-end anastomosis. As to the etiology, all cases of stricture as high up in the intestine as this one were undoubtedly tuberculous.

Dr. Pleasants: The chief objection to an end-to-end anastomosis is the degree of injury to a greater number of blood-vessels, with the degeneration which would surely follow.

A Case of Laryngismus Stridulus.—Dr. Fitzhugh: The patient was a child, fourteen months old. He retired at night perfectly well, but awoke at 3 A. M. with dyspnea and convulsions, and remained unconscious until death.

Family History: There was insanity in some of the uncles.

Past History: Born at term; weaned at five months on account of mother becoming pregnant; convulsions at two months; rickets at ten months.

Present Illness: The child had eaten potato salad and coffee during the day, and had fried trout for supper. It slept until midnight, and then became restless, and started to hold its breath in spells. This continued until daybreak, when cyanosis was noted. The doctor was called, and thought the child had croup.

When I first saw the child it was breathing uneasily, and had a temperature of 99°. Suddenly the respiration stopped. After three seconds it began

to breathe again. There were clonic spasms of the feet and hands and clonic spasms of the face. After a minute the child became quieter. The child was unconscious all the time. This series of events was repeated, the order being something as follows: First the stopping of respiration, then a returning of the same, and frequent violent convulsions. Intubation was done, and quieted the child for a time, but the trouble commenced again, showing that there were spasms of the other respiratory muscles. The child died at 1 P. M.

Autopsy was done by Dr. Ruhräh.

The abdominal cavity was very foul-smelling, there being a great deal of decomposing food in the small intestine.

Thoracic Cavity: The thymus was found to be very large, extending from the thyroid to the aorta, and being attached to the innominate veins. It was evidently attached to the sternum also, for on removing these bands the glands project considerably.

Laryngismus stridulus is a spasm of the muscles of the larynx, purely neurotic. In severe cases there are generally convulsions. It usually occurs in rickety children under two years of age, in whom nervous instability is a marked feature. The attack may be brought on by a fit of anger; in other cases it is caused by stimulation of peripheral nerves, as in cranio-tabes, or when the enlarged glands or the thymus press upon the nerves. The thymus may also cause the condition by changes in metabolism. In many cases the attack must be brought on by toxins, as in the present case. The prognosis is good unless there be general convulsions. Death is usually the result of apnea, cerebellar congestion, or exhaustion. The treatment consists of high enemata, croton oil, and small doses of atropine.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

MEETING HELD OCTOBER 20, 1902.

DR. OSLER called the meeting to order at 8 P. M.

Aneurism of the Aorta.—Dr. McCrae presented a case of aneurism whose traveling character was even more striking than that of the case shown at the previous meeting.

The patient, a male, forty-nine years old, was taken sick in September, 1901, with a cold and cough, but without expectoration. Later he had pains in the thorax, but continued to work, however, until December of the same year, when he was admitted to this hospital complaining of a cold and shortness of breath. He had had rheumatism when eight years old, used alcohol in moderation, and was by profession a coachman, often exposed to severe weather. He denied syphilis. On admission at that time, there was a heaving impulse at the manubrium, but none in the episternal notch, nor was there any diastolic shock. The manubrium was dull on percussion, but there was no pulsation in the back, no tracheal tug, no impairment of voice, and no inequality in the radial pulses. After ten days the patient was discharged improved. He continued to work until July, 1902, when he was

again admitted, complaining of a cold and cough, and of pain in the thorax. His voice was now distinctly husky.

He was admitted for the third time on October 15, 1902, with pain in the thorax, huskiness of voice, dyspnea, a cough with a remarkable "goose" quality, and a loud stridor during respiration. On examination the patient was found to have prominent and visible pulsation in the third right interspace, a diastolic shock, and dullness on percussion over the pulsating area, but no tracheal tug. There was tympany over the right lung in front. On the following day there was dullness over the front of the left lung, as well as restricted respiratory movement. On October 18 the prominence disappeared from the right side and became evident on the left, where there was a palpable shock and a heaving impulse in the first and second interspaces. The apex of the heart was outside of the nipple line. The condition of the lungs was interesting. On admission the right lung was evidently pressed upon, but twenty-four hours later the right lung became quite clear and the left quite dull. Vocal fremitus was retained over the left lung. There was a systolic murmur audible at the base of the heart as well as over the right side of the chest. The left radial pulse is now distinctly weaker than the right. The noteworthy features of the case are, first, the change in the aneurism itself, the signs being transferred from the right to the left side, and second, accompanying this a change in the physical signs of the lungs.

Dr. Osler remarked that it was unusual to have such marked disappearance of aneurismal signs. Occasionally after operation the pulsation disappears from the aneurism and the sac shrinks. A marked frequent cause of disappearance of the signs, however, is in cases where the signs of aneurism are really due to the so-called dynamic pulsation of the aorta, in cases of aortic insufficiency following ulcerative endocarditis or anemia.

Aneurism of the Aorta—Death from Gastric Hemorrhage.—*Dr. Osler* reported a case of a male, forty-five years old, who was admitted to the hospital in February, 1901. He had had pains in the left side and dyspnea since the summer of 1900. He had slept for months in an erect position, but had had no cough nor dysphagia. He had been losing weight. At that time there was a diffuse impulse, best felt on the left side. There was no diastolic shock nor aortic murmurs. The right radial pulse was distinctly felt. The patient was discharged improved.

He was admitted the second time in August, 1901, again complaining of pain and dyspnea. There were slight dullness over the manubrium, diastolic shock, but no thrill. There was pain and tenderness in the abdomen, but no marked gastric symptoms. In August, 1902, the patient was admitted for the third time, distinctly anemic, and complaining of cramps in the abdomen. There was a diffuse impulse in the chest, without any localizing signs. On October 14, and again on the 15th and 19th, he vomited large quantities of bright blood and passed a considerable amount of changed blood per rectum. He died on the evening of October 19.

Aneurism of the aorta may be grouped into those that give signs and those that give symptoms. An aneurism of the intrapericardial portion of the aorta may give neither signs nor symptoms. An aneurism of the transverse

arch usually gives both, as is readily understood when one recalls the confined space between the manubrium and the spine. Aneurism of the terminal portion of the arch or the thoracic aorta usually gives symptoms, but no signs.

In this particular case the aneurism was found to belong to the third group. It was adherent to the spine of the thoracic vertebrae, which it had commenced to erode. When the aneurism was found the question arose as to how it could have been the cause of death. On further examination, however, the cause was found not in the aneurism, but in an ulcer of the stomach, which had eroded one of the gastric arteries. It cannot be called a latent ulcer, for there had been some gastric symptoms.

Studies in the Embryology of the Kidney.—Mr. Max Brödel remarked that the general embryology of the kidney was well enough given in text-books, but that there were certain interesting points not given in them to which he wished to call attention. In his previous paper (*Johns Hopkins Hospital Bulletin*, 1901, Vol. XII, p. 10) he had shown that in 70 per cent. of adult kidneys the main vessels entered the organ in front of the pelvis. The present study of the kidneys of embryos was undertaken in order to determine the reason for this arrangement. The kidneys were taken from fetuses varying in age from three and one-half weeks to eight months, which were procured through the kindness of several physicians in the city.

When the embryo is four weeks old, the kidney, as it ascends from the pelvis, slides between the umbilical vessels and the Wolffian duct. At the fifth week it passes through the umbilical vascular fork, and now becomes an abdominal organ. At the sixth week it is distinctly above the umbilical vascular ring; the upper poles swing out of the pelvis, which, though formerly anterior, is now inclined toward the midline. If there is to be a horseshoe kidney, the fusion must take place before this period. At the eighth week the kidney fits into its lumbar pocket, whose shape is determined by the curve of the abdominal wall, the adrenal gland, and the sexual gland. The pelvis becomes inclined posteriorly, and it is at this time that the vessels enter the organ. The anterior half of the kidney is nearer the aorta; hence the vessels enter anterior to the hilum. The anterior portion of the kidney thus gets its blood first, and is correspondingly more rapidly developed. If the kidney ascends into the pelvis without rotation, *i. e.*, if it retains the position which it occupied at the sixth week, then the vessels enter posterior to the hilum. This condition is seen in 30 per cent. of adult kidneys.

Cryoscopy as an Index to Renal Insufficiency in Surgical Diseases of the Kidneys.—Dr. M. B. Tinker said the term "cryoscopy" was derived from the Greek word *cryos*, meaning frost. In November, 1882, Raoult introduced cryoscopy as a laboratory method in chemistry. Extensive experiments have been made since then, and now the freezing-point of almost every standard solution is well known. The law is fairly constant that a given solution containing a given quantity of solids freezes uniformly at the same temperature, within limits of the thousandth part of a degree.

In 1897 Koranyi first applied cryoscopy to medical purposes at Budapest. Although the German literature on the subject is already large, only two English papers of importance have been observed. Ogston of Aberdeen reported six cases in which he used the method, and Huddleston of New York reported certain cases in which he used the method. His thermometer, however, registered only one-fortieth of a degree.

The freezing-point of a fluid is lower the more solids it contains. Salt water freezes at a lower point than fresh water, and in like manner albuminous urine freezes at a lower point than normal urine. If the waste of the body be normally excreted, the freezing-point of the urine varies but little. The same is true of the blood, where it has been shown that under normal conditions the variations do not exceed two one-hundredths of a degree. In twenty cases in which Dr. Tinker had tested the method the variation in the freezing-point of the blood did not exceed one one-hundredth of a degree. There was more variation found in the freezing-point of the urine, the limit being from 0.9° C. to 0.2° C.

As to the accuracy of the method, in two cases in this hospital where pus kidneys were present the freezing-point of the urine was very low. In other cases where at operation there was considerable disease of the kidney found, but where there was still sufficient healthy tissue to excrete the waste of the body, the freezing-point was not much altered. As to the simplicity of the method, 20 c. c. of fluid are needed for a good determination. In the case of blood, one can usually get sufficient from the superficial veins, withdrawing it with a syringe, as for blood cultures. The whole procedure, including the preparation of the ice and salt mixture, does not take over three-quarters of an hour. As to the relative value of the method when compared with other clinical methods, the freezing-point gives us an index not only of the weight of the excreted solids, but of the number of molecules of such solids. We thus get information which a knowledge of specific gravity will not give us. The determination of the freezing-point is more satisfactory than that of the urea excreted, for the latter varies considerably, and, after all, urea is only one of the substances excreted. The percentage of albumen or sugar cannot be determined by cryoscopy, but in surgical kidneys cryoscopy does tell us whether there is enough healthy kidney to excrete the body waste.

Dr. Young remarked that there was great need in determining more than had been known about the condition of the kidney. Urea determination had proved of little value, and he had great hopes that cryoscopy would fill a real need. Kasper uses double ureteral catheters, and takes the freezing-point of urine from each kidney. He finds the results in a large number of cases to correspond very closely with those of his phlorizin tests. In these tests, as is well known, phlorizin is injected subcutaneously, and produces an artificial glycosuria. The diseased kidney excretes but little sugar. In the application of cryoscopy the main objection to it would seem to lie in the difficulty of getting sufficient urine for the tests. The instrument, however, can probably be made smaller than it is at present, and the tests will then be of the greatest value for clinical determinations. EDWARD H. HUME.

Johns Hopkins Hospital, October 25, 1902.

Book Reviews.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Lectures and especially-prepared Articles on Medicine, Surgery, Neurology, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and other topics of interest to Students and Practitioners by leading members of the medical profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., with the collaboration of John B. Murphy, M.D., Alexander D. Blackader, M.D., H. C. Wood, M.D., T. M. Rotch, M.D., E. Landolt, M.D., Thomas G. Morton, M.D., James J. Walsh, M.D., J. W. Ballantyne, M.D., and John Harold, M.D., with regular correspondents in Montreal, London, Paris, Vienna, and Leipsic. Volume II, twelfth series. Philadelphia: J. B. Lippincott Company. 1902.

The present volume of this well-known quarterly is of unusual interest. It contains twenty-seven articles by twenty-six authors, American and foreign. These articles are distributed under four general heads, eight under the heading of Therapeutics, ten under Medicine, and five under Surgery. The single article on Gynecology is by Dr. Howard A. Kelly. Dr. Kelly has also a special article on the "Management of a Modern Private Hospital." Another contributor from Baltimore is Dr. John C. Hemmeter, who furnishes an article on "Gastro-intestinal Auto-intoxication."

A very well-illustrated article is that of Thomas Jonnesco of Bucharest on "Resection of the Sympathetic." Jonnesco has done 130 bilateral cervical sympathectomies. The chief interest of the article is in the fifteen cases which were operated upon for the relief of exophthalmic goiter.

SMALLPOX ILLUSTRATED. A Practical Treatise on Smallpox. Illustrated by colored photographs from life. By George Henry Fox, A.M., M.D., Consulting Dermatologist to the Health Department of New York city, with the collaboration of S. D. Hubbard, M.D., S. Pollitzer, M.D., and J. H. Huddleston, M.D. In two parts. Philadelphia and London: J. B. Lippincott Company. 1902.

This book treats of the varieties, clinical course, and complications rather briefly, but clearly, giving no space to the literature of the subject. It deals quite fully, however, with the diagnosis of smallpox, especially its differential diagnosis. In this connection only the characteristic history and the signs and symptoms are mentioned, no allusion being made to the laboratory aids in the diagnosis of those diseases from which smallpox must sometimes be differentiated.

The illustrations form the major portion of the work, and they are exceedingly well adapted to the purpose. There are thirty-seven of these illustrations, showing smallpox in its various stages and in several varieties. Eighteen of these pictures are printed in colors.

There is a good chapter on treatment—practical, but not elaborate—and another chapter on vaccination, which treats of the virus, the technic of

vaccination, its clinical course, variations and complications, and immunity. One plate is devoted to vaccinia, with five illustrations, and there is a single picture of varicella.

The text is printed on very heavy book paper, the pictures are on the best plate paper, and the whole is enclosed in loose covers, without any stitching. The collection of pictures gives to the work its distinctive value.

TREATISES ON DISEASES OF THE SKIN. By Henry W. Stelwagon, M.D., Ph.D., Clinical Professor in the Jefferson Medical College. Philadelphia and London: W. B. Saunders & Co. 1902.

This work, designed for advanced students and practitioners, is a very pleasing volume, in which the subject is treated in a masterly way.

The classification of diseases, a difficult matter in dermatology, is good. The etiology and pathology, of great importance in cutaneous medicine, are well considered, and the treatment of diseases is entered into in detail. The chapters on eczema and syphilis are especially good, and should make one familiar with these common diseases.

The exanthems, often perplexing in their diagnoses, are so treated as to leave little room for doubt, and variola, now of so frequent occurrence, is carefully considered.

Tuberculosis cutis is given more attention than is usual in a work of this kind. Especial reference might be made to other sections of the book.

The text throughout is supplemented by a well-chosen bibliography. Of great aid and assistance to the student are the many illustrations and plates, accurately and truthfully depicting the various diseases. The volume as a whole is very practical and well suited to both student and practitioner. The mechanical features of the work—the paper, presswork and binding—are very good.

A.

ESSENTIALS OF HISTOLOGY.. By Louis Leroy, B.S., M.D., Professor of Histology and Pathology, Vanderbilt University, Medical and Dental Departments; Pathologist to the Nashville City Hospital, etc. Second edition, thoroughly revised and greatly enlarged. 16mo volume of 263 pages, with 92 beautiful illustrations. Cloth, \$1 net. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co., 3 West Saratoga street. 1902.

The fact that a second edition of this work has appeared in such a short time would seem to indicate that it has met with favor among students. In this edition a number of new illustrations have been added, and the chapter on Technic has been enlarged. Personally, we do not favor the use of compends for students, as, for the most part their brevity fails to convey an adequate idea of the subject, and gives a false impression of the importance of the branch in question. As a hasty review for examination it may fulfil a purpose. The illustrations in the book before us are not all to be desired; and in general the work does not come up to the standard of some others of this series.

H.

DISEASES OF THE NOSE, PHARYNX, AND EAR. By Henry Gradle, M.D., Professor of Ophthalmology and Otology in the Northwestern University Medical School, Chicago. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

The author starts off by considering in detail the formation of the nasal chamber and its accessory cavities, and gives a most excellent account of their anatomy. He carries out the same plan regarding the throat and ear. This is to be highly commended, as too many American text-books are defective in this respect.

The physiology of the nose is considered briefly, but well. The directions for examination of the nose are very brief. The author seems to favor examination by the aid of electric light on the forehead, a method whose advantages might readily be questioned, as compared with the perforated mirror. He favors douching in nose-cleansing, and recommends it highly. The metric system is not used. The references are excellent, and make the work complete.

In his consideration of sinus diseases the author is far ahead of most books on the subject. Fifty-four pages are devoted to the sinus diseases.

The usual differences of opinion are brought out in treating of atrophic rhinitis. Gradle believes that diseases of the sinuses play but an incidental part. The author fails to mention many of the well-known remedies, being apparently somewhat of a therapeutic nihilist.

The chapter on septum troubles is well written. The cuts are numerous and well executed.

He devotes much space to consideration of hay fever, diphtheria, etc., so increasing the value of the book to the general practitioner.

The part devoted to the ear is just as well done as that upon the nose and throat.

The author has produced an American work that should be well received.

SAUNDERS' QUESTION COMPENDS: ESSENTIALS OF DISEASES OF THE EAR. By E. B. Gleason, S.B., M.D., Clinical Professor of Otology, Medico-Chirurgical College, Philadelphia; Surgeon in charge of the Nose, Throat, and Ear Department of the Northern Dispensary, Philadelphia, etc. Third edition, thoroughly revised. 16mo volume of 214 pages, with 114 illustrations. Cloth, \$1 net. Philadelphia and London: W. B. Saunders & Co.; Baltimore: Medical & Standard Book Co.

Dr. Gleason has presented his subject in a very satisfactory manner. The questions are so arranged as to point out to the student the essentials of each topic, and thus enable him to make a rapid review of otology. It is not intended for a text-book, and yet under some circumstances it might serve as a fair substitute therefor. The diseases of the ear are considered in an up-to-date way, and the treatment outlined in each constitutes the best that is known at the present time. The book is very well illustrated.

H. O. R.

MARYLAND MEDICAL JOURNAL.

JOHN S. FULTON, M.D., *Editor.*

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BALTIMORE, DECEMBER, 1902

THE MOVEMENT AGAINST PLAGUE IN THE UNITED STATES.

THE plague situation in California is nearing a crisis. At the Conference of State and Provincial Boards of Health of North America at New Haven on October 29 resolutions were offered by the State Board of Health of Maine which recited briefly the history of plague in California, and concluded as follows: "The Conference of State and Provincial Boards of Health of North America views with abhorrence the irretrievable disgrace of the present State Board of Health of California, and pronounces the plague situation in that State a matter of grave national concern;

"And be it further resolved, That the Conference of State and Provincial Boards of Health of North America does hereby advise the State boards of health of the several States to consider the propriety of calling upon the Surgeon-General of the United States Public Health and Marine Hospital Service to arrange at the earliest possible date a conference for the purpose of eradicating plague from the United States."

The earnestness of the Conference is shown in the fact that within three weeks of the adjournment of the meeting at New Haven eight State boards of health had taken action in line with these resolutions and had called upon the surgeon-general to proceed under the authority of the recent act enlarging the powers of his service. Other boards will take action as rapidly almost as the dates of their regular meetings come round, and there is no doubt that the eyes of the country are now focused upon the conduct of the local authorities.

The New Haven sanitarians wisely refrained from particular criticism of the political aspects of the plague question, and confined their animadversions strictly to the disgrace and danger which the California State Board of Health has brought upon the State and nation.

It would seem that the Conference might have said a word of praise for the City Board of Health of San Francisco, which has stood firm for two years under an incessant fire of vilification and abuse.

The representatives of the United States Public Health Service were undoubtedly somewhat solicitous lest the Conference at New Haven might make some intemperate utterance, and wisely kept silent during the proceedings, but the resolutions went through without a ripple, and now that the several State boards are taking into independent and deliberate consideration the recommendations of the Conference, there can be no doubt of the cold sobriety of the movement, and no doubt that it will prove serviceable to the Surgeon-General in a new and delicate undertaking.

The calls already sent to the surgeon-general are from Maine, Maryland,

Louisiana, Iowa, Indiana, Wisconsin, District of Columbia, Rhode Island, and Connecticut.

The *New York Herald* is authority for the statement that sixty-five white persons have died of plague in San Francisco. The list of cases reported at the New Haven meeting included but six white persons, but the *New York Herald's* account is probably nearer the truth, for the State Board of Health of California has been in complete command of the situation for months, and their energies have been devoted to the concealment of the facts. The New Haven list of cases included only those of persons whose names and addresses, with the date of death, had been definitely ascertained.

While the Conference was in session at New Haven a young white man living several blocks away from Chinatown died of plague, and no connection could be traced to another case. On good authority it is said that there are foci of infection in other parts of the State than San Francisco.

The situation demands as a primary measure the complete reorganization of the State Board of Health. There were in 1900 three gentlemen on the board who were convinced that the first reported cases were in fact plague, and who maintained that position. These three were removed by Governor Gage and replaced by men who took, and to the present time maintain, the view that plague does not exist and has not existed in California. They discharged a competent bacteriologist who persisted in his diagnosis of plague, and secured the services of one who believed that the Chinamen died of hemorrhagic septicemia. After two autopsies this bacteriologist was convinced that he was dealing with plague. Thereupon he was discharged, and a gentleman who graduated in 1841 was engaged as bacteriologist. This bacteriologist maintained the diagnosis of hemorrhagic septicemia with unfaltering fidelity.

The health officials of other States cannot coerce themselves into believing any representations whatsoever upon the authority of the State Board of Health of California. It has been said that the profession is divided on the subject. Possibly so, but the overwhelming majority of medical men believe and express their belief in the existence of the plague and in its gravity. Those who hold the contrary view made an exceedingly poor showing in the State Medical Society. The *Occidental Medical Times* has been outspoken from the first, has published the autopsy reports, and has made a vigorous fight, which shows very well that the medical profession of the State is upon the right side of the question.

THE KNOT IN THE STRING OF THE APRON OF MOTHER EDDY.

MOTHER MARY BAKER GLOVER PATTERSON EDDY has lately forbidden her children to "doctor" infectious and contagious diseases. Let us invoke upon her irresponsible brood the grace of obedience.

This prohibition follows upon the heels of the indictment of a famous "healer" in New York for the manslaughter of a believer's child. The inconsiderate action of the magistrate in this case indicated to Mother Eddy a sad lack of information on the rights and powers of Christian Science, and justified, in her opinion, a restriction of the zeal of her disciples. Therefore the Profiteess shortened her apron-strings, and "until human thought is better informed," Christian Scientists must refrain from "doctoring" in-

fectious diseases. The pontifical apron-strings were once before adjusted to human misinformation. About two years ago Mother Eddy made an edict in which she said that Christian Science is the very best surgeon, but that the demonstration of this pre-eminence would be reserved for a later generation. The faithful were therefore advised to address themselves exclusively to the minds of their injured patients, leaving the injuries to the fingers of the surgeons. In its frank attribution of fingers to the surgeon Mrs. Eddy's edict was an example of that delicious sort of humor which is never conceived in the mind of a humorist.

It is somewhat doubtful if the dear children will heed their wise mother's later injunction. They did not, at any rate, refrain from "doctoring" surgical cases.

An aged lady who lived near the writer fell and injured her hip quite severely. Her two daughters, both past middle life, were "healers," and undertook to cure their mother. The neighbors often saw on the streets the two healers conducting a very aged woman whose efforts to walk were accompanied with every evidence of exquisite torture. The deluded daughters were totally blind to their mother's agony. They took her to a watering-place where they continued to dispute the "claim" in the same excruciating manner. But intracapsular fracture is a stubborn "claim," and at length the poor sufferer went to rest. A few months later the elder sister yielded to a "claim," and followed her mother. The one survivor removed from the locality.

If the triumph of faith over reason has been indefinitely postponed with respect to surgical cases and infectious diseases, the demonstrations of Christian Science can hardly be spectacular, and, what is worse, they must depreciate in cash value. But the most discouraging feature of the situation is the confessed abeyance of Christian Science to "human thought." When "human thought is better informed" infectious diseases and surgical cases may both be treated by Christian Science. How human thought is to become better informed does not appear, but certainly not by demonstrations, for the demonstrations which have been and those which might have been are all abandoned. Mortal mind seems to be perversely and persistently acquiring misinformation, and since Mother Eddy's apron-strings have already been twice shortened out of respect to human misinformation, it is conceivable at least that the liberty of the faithful may again be curtailed.

In abandoning the past performances of Christian Science in the treatment of infectious diseases complete sacrifice is made of all the pitiful offerings which have been in the belief that the Word of healing has indeed been vouchsafed to men. What a shock to those who hold this fond delusion to be told that in the face of an unbelieving majority the Good Mother will withhold the Gift even from believers!

THE REVIVAL OF THE INDEX MEDICUS.

THE physicians of the country will rejoice as one man at the good news just announced in *American Medicine* that the trustees of the Carnegie Institution have decided to revive the Index Medicus. Under this management there can be no doubt that the work will be thoroughly well done, and the results will be available on reasonable terms. It is hoped that the new Index will cover the gap opened by the suspension of the old Index. The materials are said to be in large part prepared, and the cost would not be very large.

Correspondence.

THE NEW REACTION FOR BENCE-JONES ALBUMOSE.

IN the November number of your JOURNAL, page 492, there is described a rapid reaction for Bence-Jones albumose.

The method directs the treatment of urine with sodium chloride, followed by boiling with caustic soda, and then the addition of lead acetate, a dark precipitate of lead sulphide indicating the presence of albumose, from which sulphur has been split off by the alkali.

Unquestionably sulphur will be split off from albumose by this treatment, but as a reaction to prove the presence of albumose in urine the method is worthless, because among the normal constituents of urine are certain substances grouped under the name of neutral or reduced sulphur, including thio-sulphuric, tauro-carbamic, sulphocyanic acids, cystin, ethyl-sulphide, etc. All of these substances are characterized by the ease with which they give up sulphur when heated with caustic alkali, and the ordinary reaction to show their presence in urine depends on this property and the formation of a brown or black color by the action of the alkali sulphide on lead acetate.

For this reason, in order to identify albumose by its loosely-combined sulphur, it is necessary that the material be salted out of urine, and the above-mentioned reaction be made with the well-washed precipitate. Yours respectfully,
Baltimore. ALEXIUS MCGLENNAN, M.D.

A PECULIAR CASE OF TRIPLETS.

ON September 4, 1884, Mrs. W— J— gave birth to two living children and one fully-formed mummified fetus about six inches in length. The three children were attached to a single placenta by three cords having as many placental insertions. The live-born children survived but a few hours. They were apparently a little past the sixth month of utero-gestation. Shortly after the delivery the mother was seized with violent convulsions, which continued at half-hour intervals for twelve hours. She recovered under the usual treatment, and has since given birth in the normal way to normal children.

In 2030 confinements, which include 30 plural births, this instance is the only one of the sort coming under my observation.

Annapolis.

H. R. WALTON, M.D.

Medical Items.

DR. ADOLPH LORENZ is to receive the degree of LL.D. from the Northwestern University.

IN a bill now pending before the board of aldermen for New York city it is proposed to tax private carriages \$5 a year, physicians' vehicles \$10 a year.

THE Health Department of New York city has been investigating the registration of births in the borough of Queens. The missing records are said to number from 900 to 1000 annually.

DR. J. H. MUSSEY of Philadelphia narrowly escaped injury the other day when a trolley car collided with his automobile. Dr. Mussey jumped at the moment his vehicle was upset, and received only a slight scalp wound.

THE passenger agents of the railroad lines entering Denver have agreed upon a regulation which shall require every invalid boarding a train in Colorado to furnish a physician's certificate of freedom from infectious or contagious disease.

SMALLPOX has been present at three points in Maryland during the month of November—at Cumberland, at Gormanian, Garrett county, and at Elliott's Island, Dorchester county.

THE bond of Dr. Thomas H. Magness of Baltimore, held by the West Virginia authorities to answer a charge of personating David R. Shepler before the Examining Board of West Virginia, has been forfeited. The bond was for the sum of \$500.

TEN ordinances for the purchase of as many different sites for a new municipal hospital for Philadelphia are now before the city council. These ten ordinances are intended to dispose of sixty-five offers of sites. The Hospital Commission for the city of Baltimore might take a hint from this.

SURGEON-MAJOR WALTER REED died in Washington on November 23 shortly after undergoing an operation for appendicitis. The announcement of his death was a profound shock to his many friends in Baltimore. Dr. Reed was president of the army medical commission which worked out the causation of yellow fever. This was an epoch-making achievement, and established Reed's fame for all time.

THE Johns Hopkins Medical School has received \$25,000 from Dr. and Mrs. C. A. Herter of New York city, to be used for the foundation of a memorial lectureship to provide a more intimate acquaintance with the work of foreign investigators in medical science. An eminent worker in physiology or pathology is to be invited each year to lecture upon some subject with which he has been particularly engaged.

DR. WM. H. CRIM died suddenly at his home in Baltimore on November 15, aged fifty-seven years. Dr. Crim was born in Loudon county, Virginia, and graduated in medicine at the University of Maryland in 1871, since which time he had been in active practice in Baltimore. For thirty years he was a surgeon to the Fifth Maryland Regiment. Besides pursuing an active practice Dr. Crim was an enthusiastic collector of works of art and of antique furniture and relics.

THE following advertisement from an English newspaper is reproduced in the London letter to *Medical News*: "A Nobleman, traveling abroad, will be glad to hear of a fully qualified Medical Man to accompany him, who is an expert in passing a bougie into the middle ear, and the treatment of ingrowing toe-nails; terms, food and out of pockets; an M.D. preferred: evening dress and Church of England. Address," etc. The London correspondent believes that the aristocrat probably found a qualified medical man more than willing to travel and care for his nibs' ears and toes at the remuneration offered.

MR. ARMOUR, the father of Dr. Lorenz's little patient Lolita, proposes to make a thank-offering for the cure of his daughter's lameness. He will found, it is said, an "Armour Institute of Bloodless Surgery." Three million dollars are to be devoted to this purpose, and Dr. Mueller, Lorenz's assistant, is to take charge, it is said, of the new hospital. It is to be hoped that the new hospital will not be handicapped by such a title as that quoted. "Bloodless surgery" is a mere newspaper phrase, signifying nothing as to the proper scope of such a hospital, and not even descriptive of the operation which Lorenz has perfected. The use of this phrase could only result in the disappointment of the public

and in the ceaseless embarrassment of the surgical staff.

THE prizes offered by the Maltine Company for the two best essays on "Preventive Medicine" have been won by two Philadelphia physicians. The first prize of \$1000 was awarded to Dr. W. Wayne Babcock, 3302 North Broad street, Philadelphia, for his essay on "The General Principles of Preventive Medicine." The second prize of \$500 was won by Dr. Lewis S. Somers of 3554 North Broad street for an essay entitled "The Medical Inspection of Schools—A Problem in Preventive Medicine." Two hundred and nine essays were submitted, thirty-nine States and two Provinces of Canada furnishing the contestants. The judges were Drs. Daniel Lewis of New York, Charles A. L. Reed of Cincinnati, and Edwin Rhodes of Chicago.

THE semi-annual meeting of the Medical and Chirurgical Faculty of Maryland was held at Laurel on November 18 in the Odd Fellows' Hall. Dr. Wm. T. Howard, the president, being unavoidably absent, Dr. Samuel T. Earle presided. Dr. Wm. F. Taylor of Laurel made the address of welcome. Following is a list of the papers presented: "The Diagnosis and Prognosis in Cases of Mental Depression," Dr. Stuart Paton; "The Prognosis of Chronic Otorrhea," Dr. H. O. Reik; "Rheumatism and the Need of a New Classification," Dr. J. E. Gichner; "A Case of Ruptured Uterus—Operation—Cure," Dr. Randolph Winslow; "Therapeutic and Dietetic Methods for Increasing or Diminishing Body Weights," Dr. John C. Hemmeter; "Physiological Chemistry as a Guide to Diagnosis and Treatment," Dr. Charles G. Hill; "Large Uterine Myoma Complicating Pregnancy—Complete Hysterectomy, with Specimen," Dr. J. H. Branham; "Almshouse Care of the Insane in Maryland," Dr. Geo. J. Preston; "Wounds of the Chest," Dr. I. R. Trimble; "A Case of Angina Ludovici," Dr. Frank D. Sanger; "Hemorrhagic Pancreatitis," Dr. Frank Martin; "Demonstration of Sections of the Brain and Cord from a Case of Infantile Hemiplegia," Dr. Robert Reuling; "Observations Upon Ophthalmia Neonatorum," Dr. Hiram Woods; "Recent Advances in the Operative Treatment of Cancer of the Uterus," Dr. Thos. S. Cullen; "The Conditions and Causes Underlying Dipsomaniacal Attacks," Dr. Wm. Lee Howard; "Paracentesis Abdominis," Dr. Edwin J. Dirickson.



